

FIG. 1 PRIOR ART

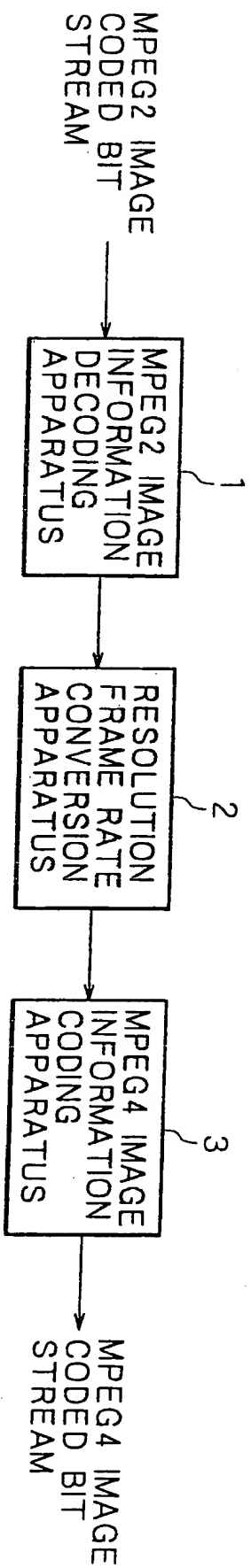


FIG. 2 PRIOR ART

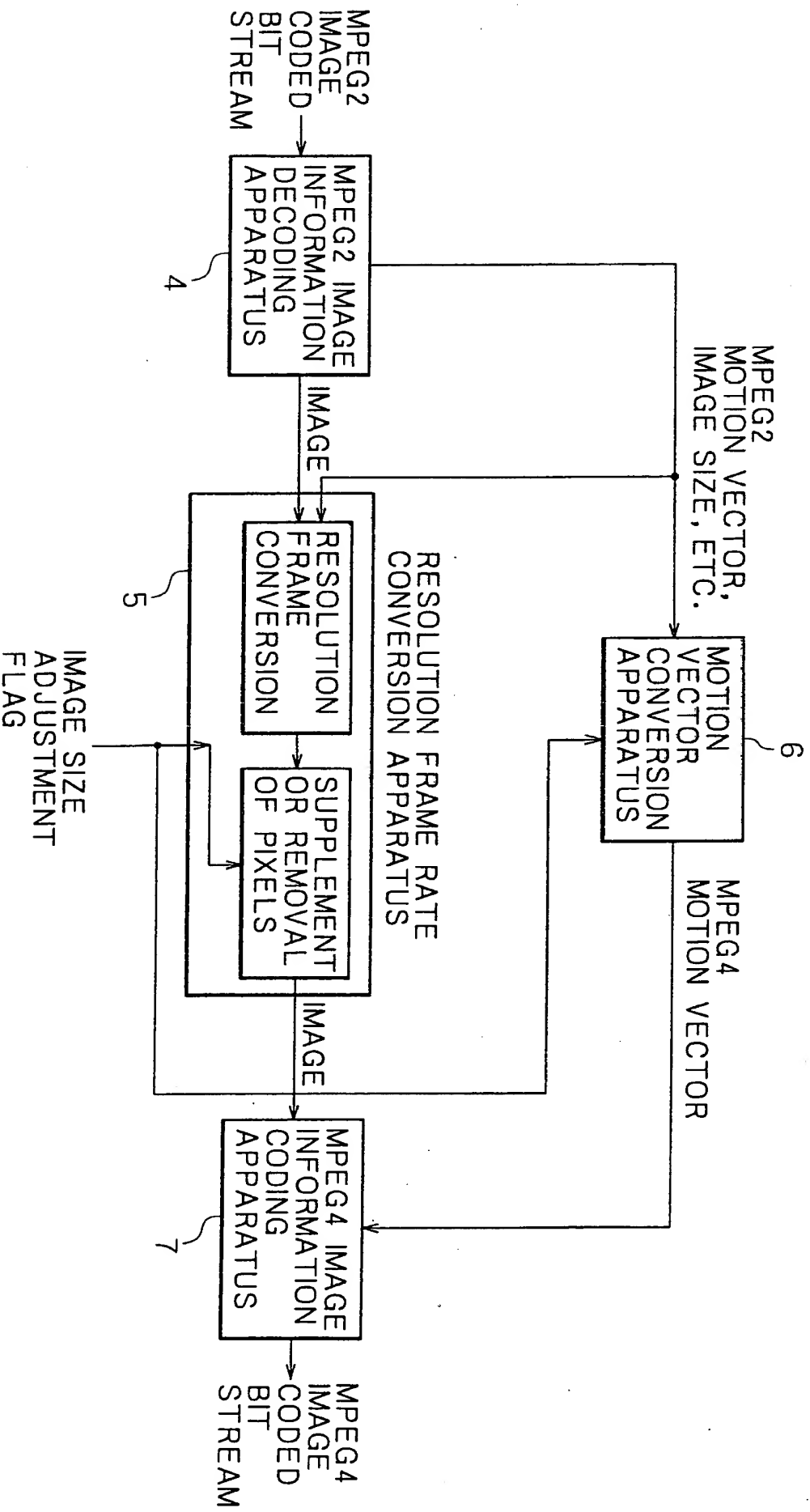
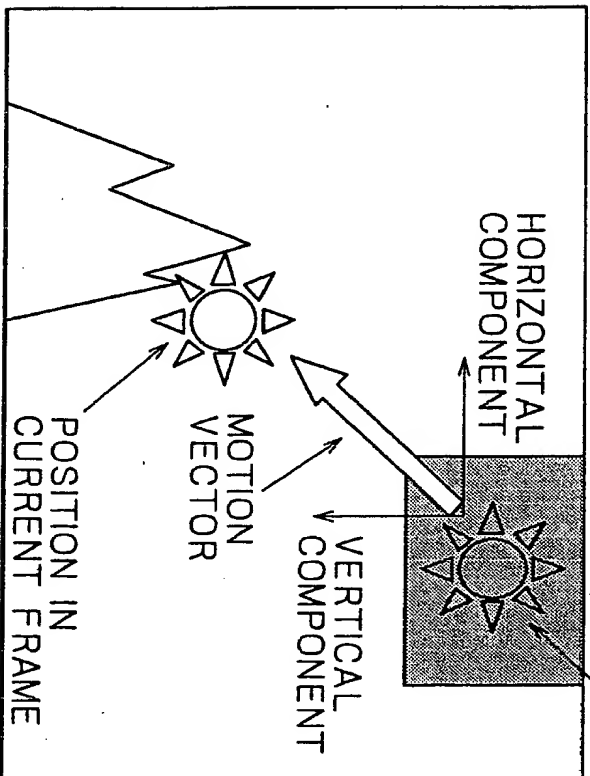


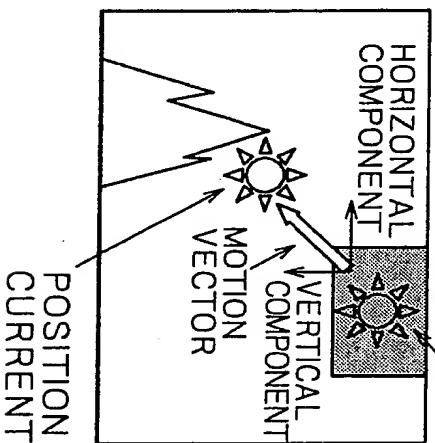
FIG. 3A PRIOR ART

FIG. 3B PRIOR ART

POSITION IN PRECEDING FRAME  
IS INDICATED WITH SCREEN



POSITION IN PRECEDING FRAME  
IS INDICATED WITH SCREEN



# FIG. 4

PRIOR ART

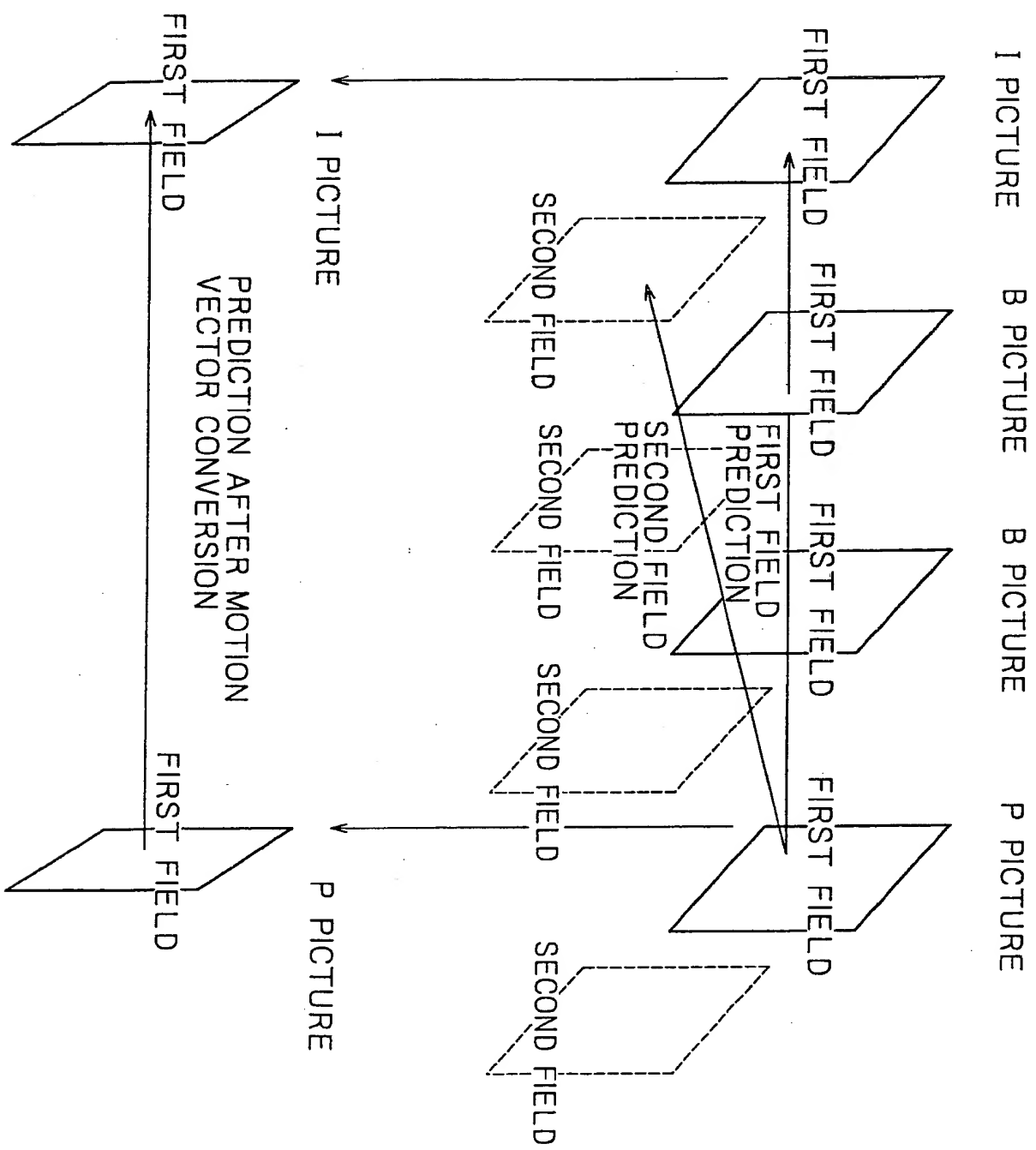


FIG. 5 PRIOR ART

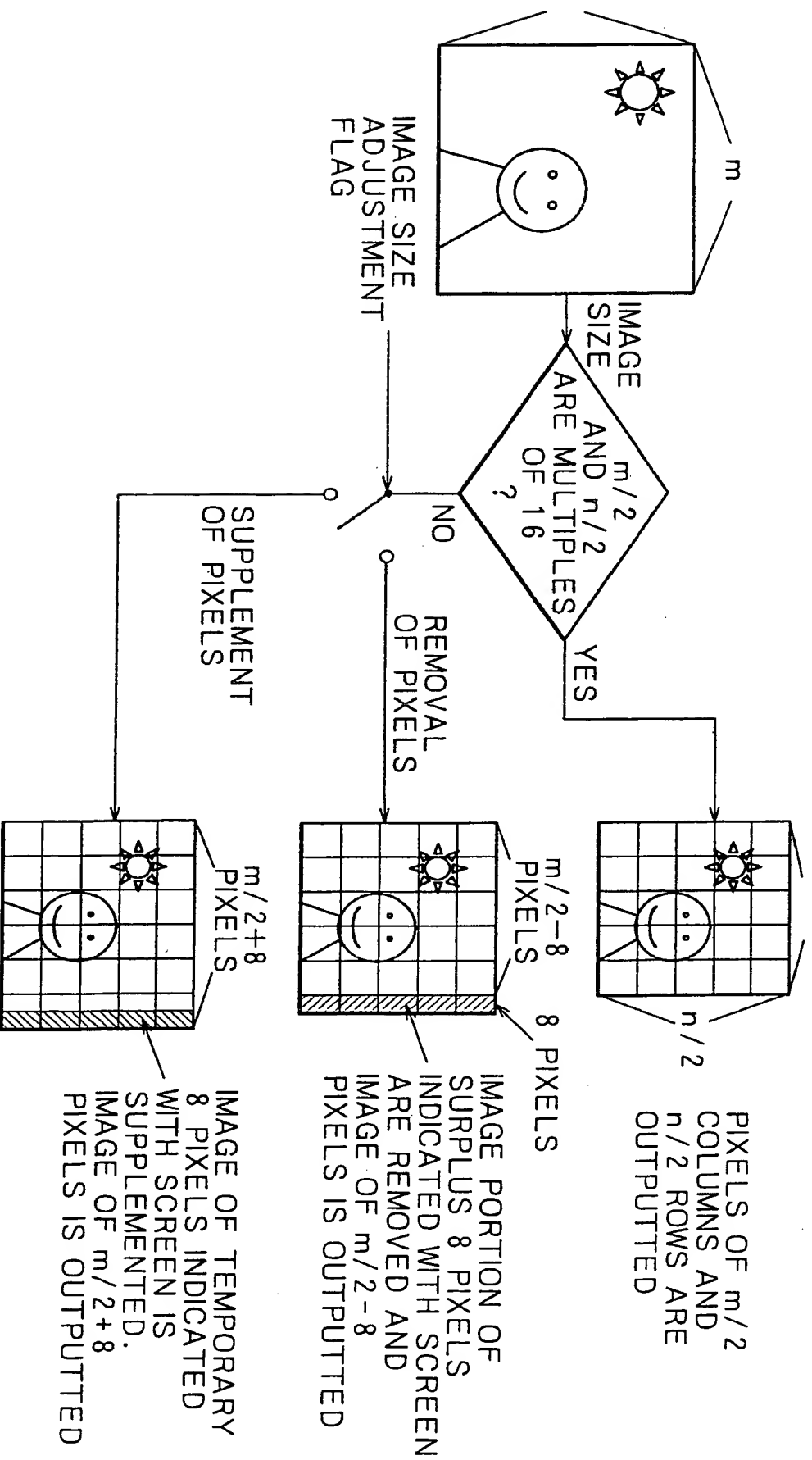
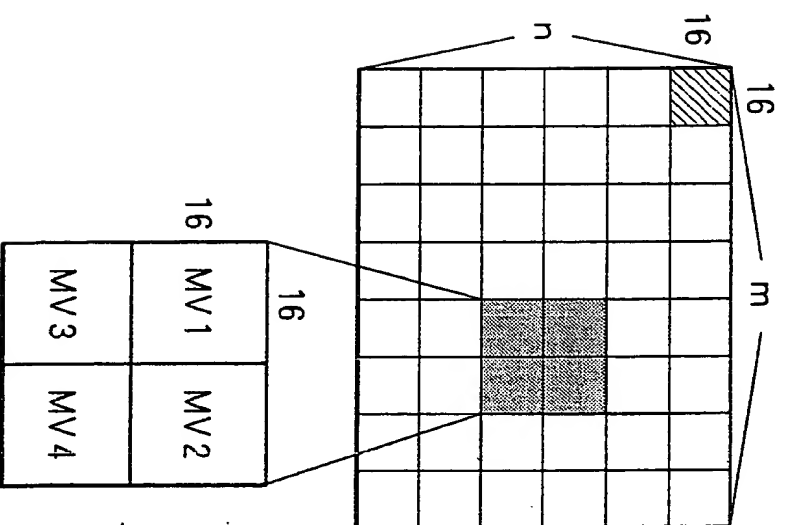


FIG. 6A PRIOR ART

IMAGE DECODED BY MPEG2  
DECODING SYSTEM

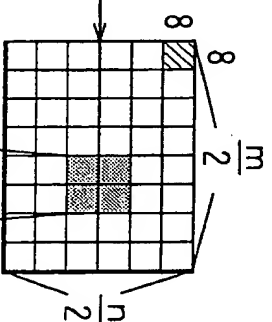


BEFORE RESOLUTION  
CONVERSION

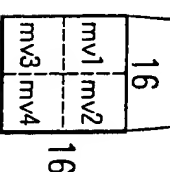
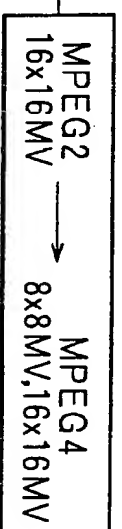
FIG. 6B PRIOR ART

IMAGE CODED BY MPEG4  
CODING SYSTEM

RESOLUTION  
FRAME RATE  
CONVERTER

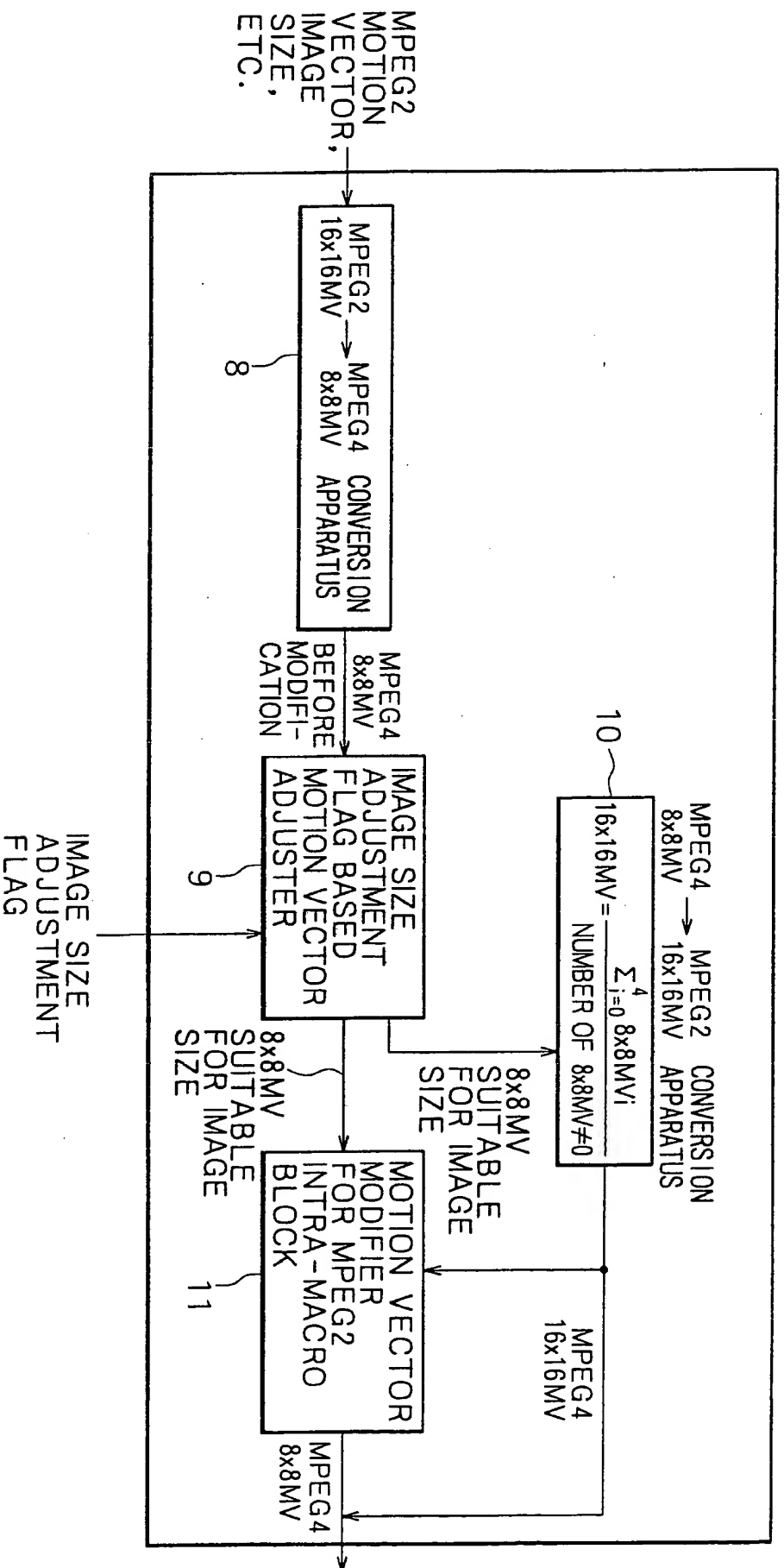


CONVERSION



AFTER RESOLUTION  
CONVERSION

FIG. 7 PRIOR ART



# FIG. 8 PRIOR ART

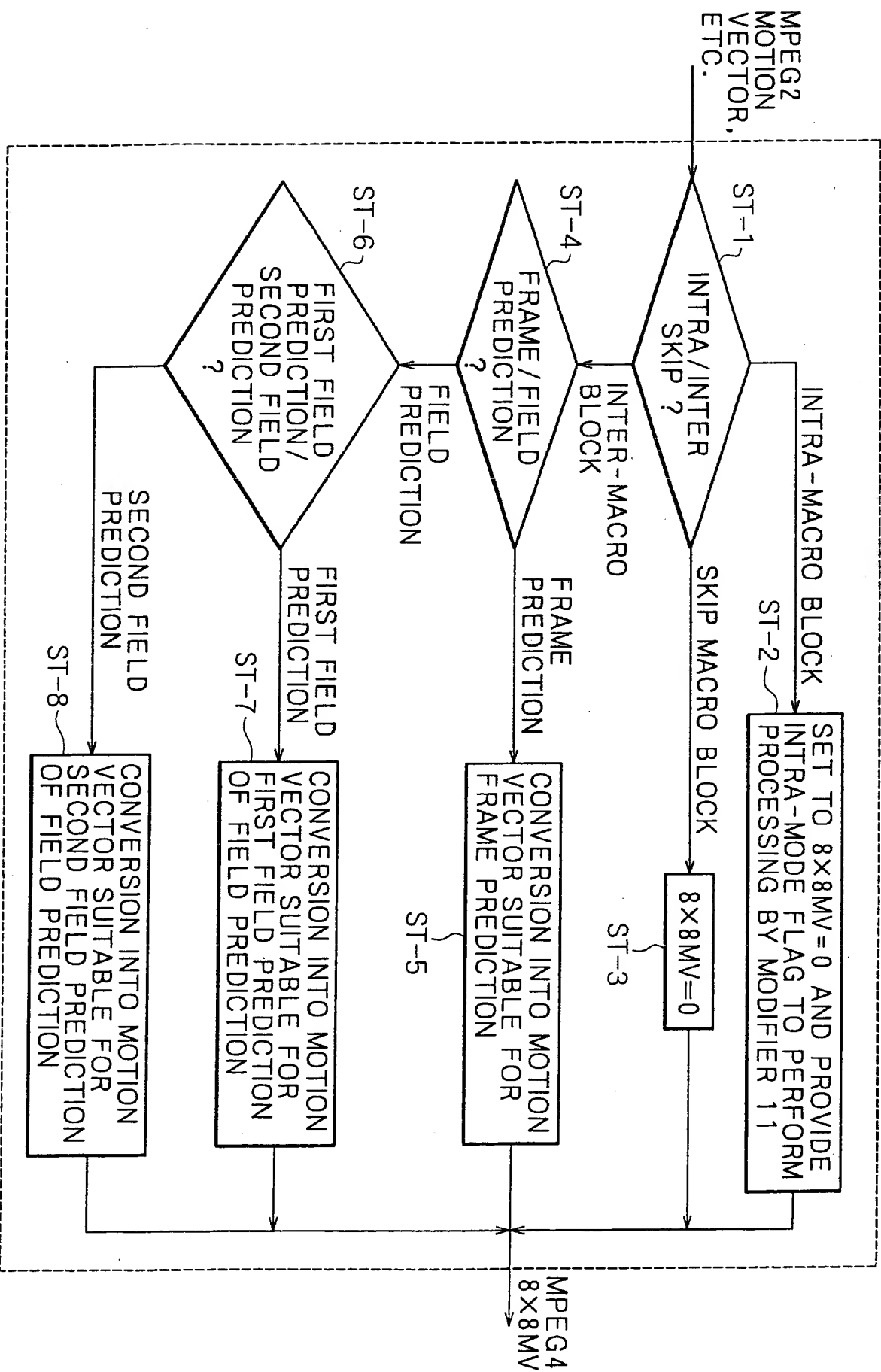




FIG. 9A PRIOR ART

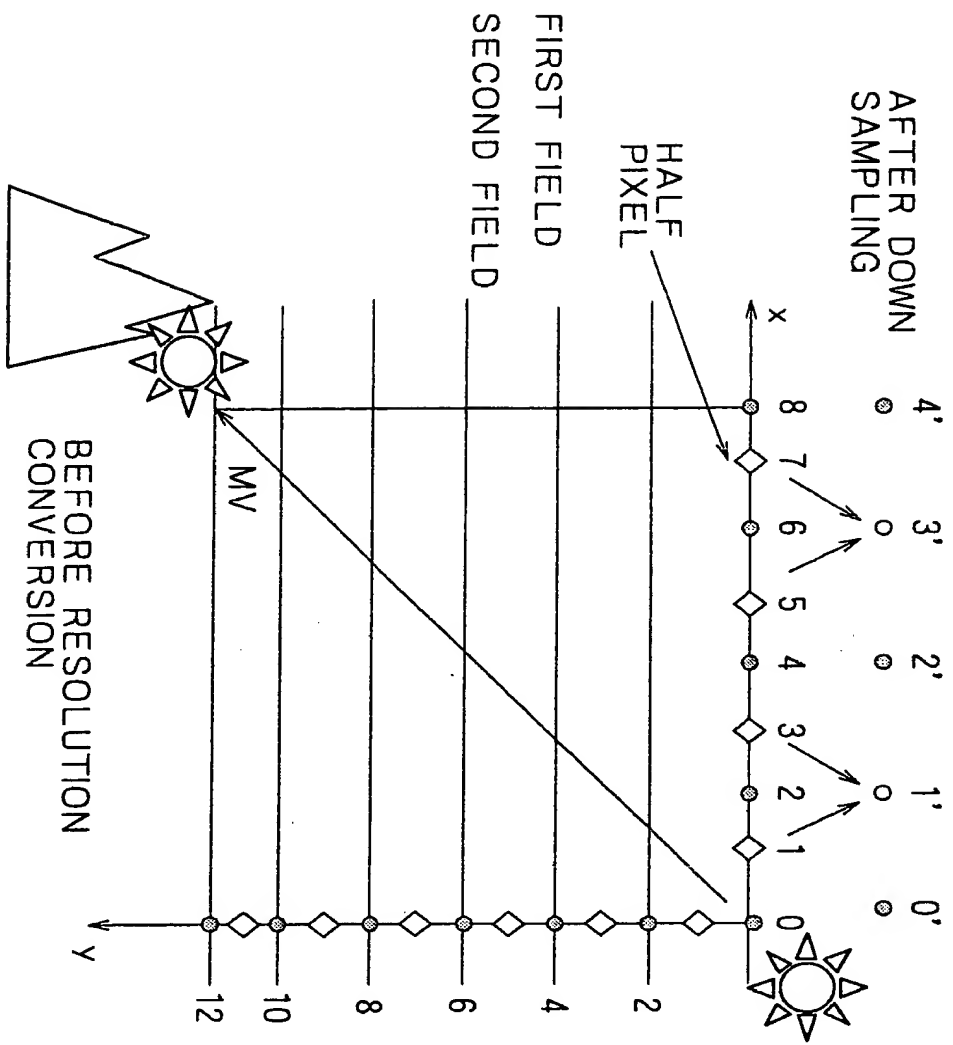
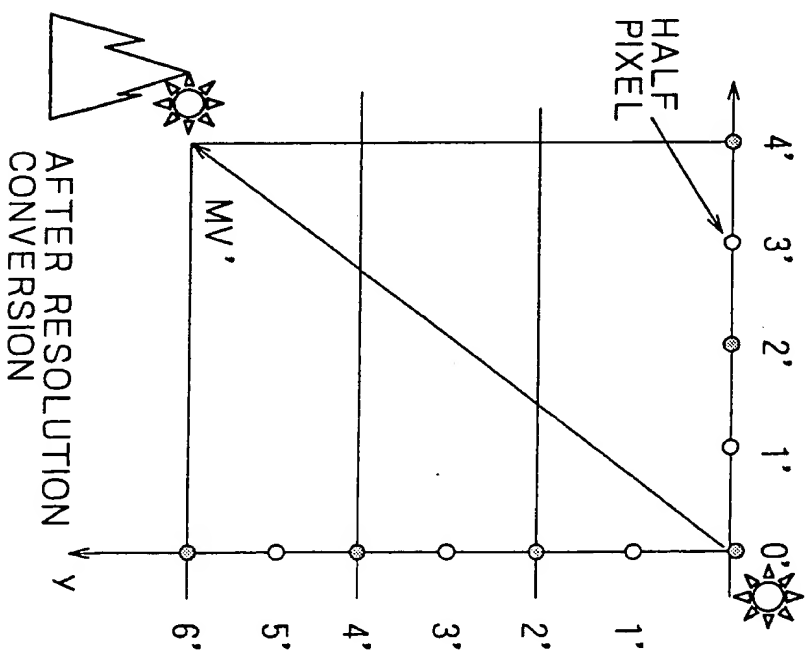


FIG. 9B PRIOR ART



# FIG. 10 PRIOR ART

REMAINDER WHEN MOTION VECTOR MV BEFORE CONVERSION IS DIVIDED BY 4	0	1	2	3
MOTION VECTOR AFTER CONVERSION	$[MV/2]$	$[MV/2] + 1$	$[MV/2]$	$[MV/2]$

$[MV/2]$  REPRESENTS INTEGER PART WHEN MV IS DIVIDED BY 2

FIG. 11A PRIOR ART

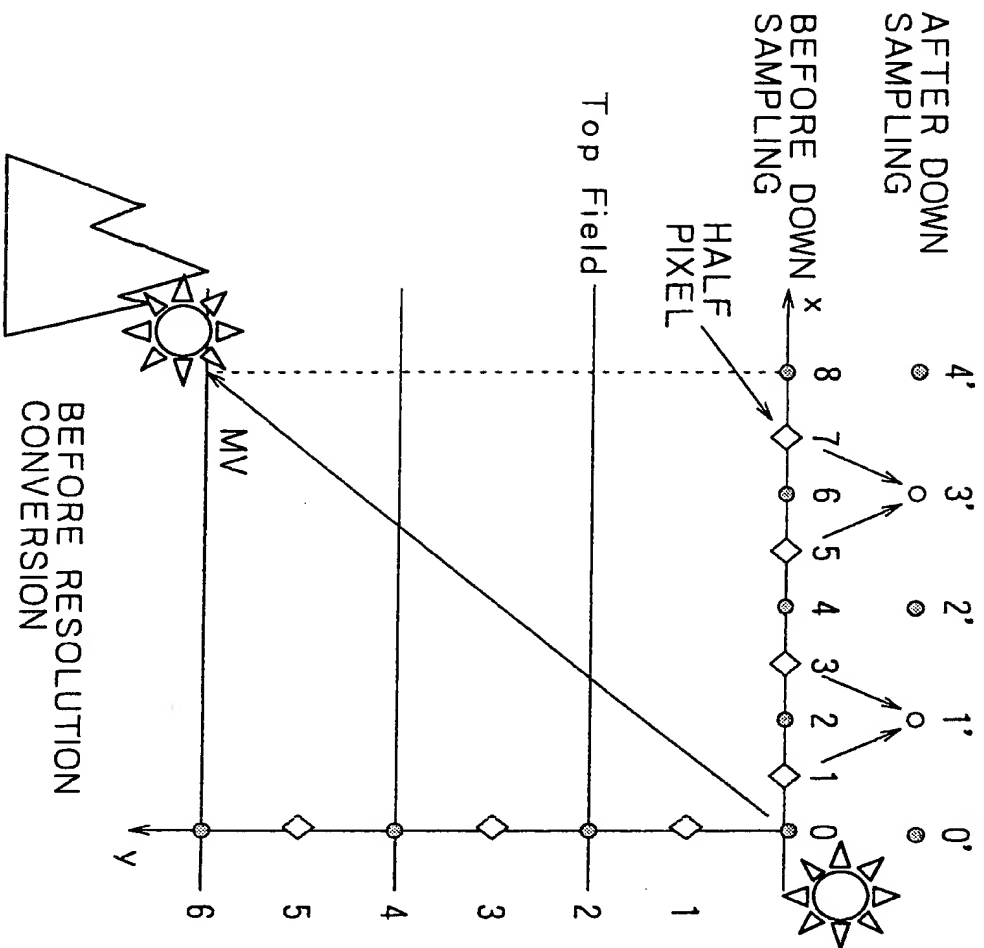
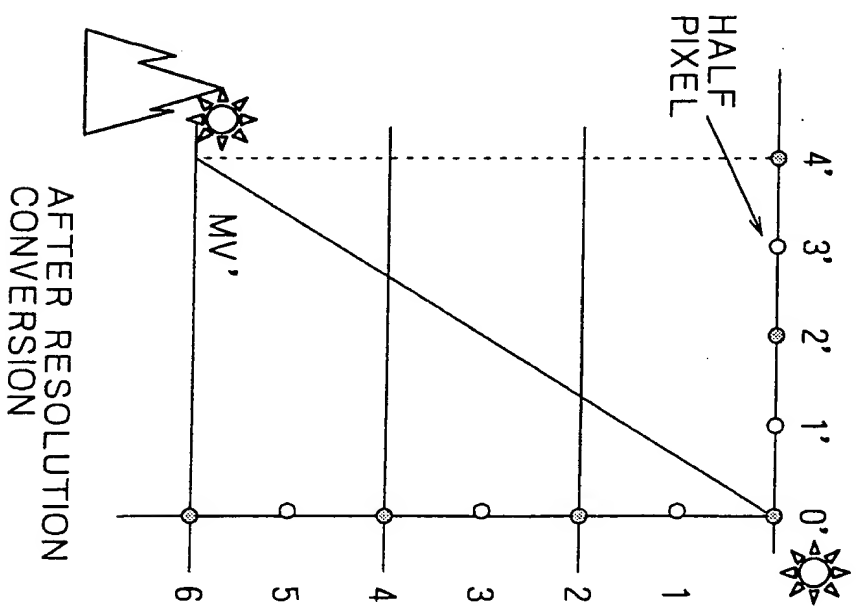


FIG. 11B PRIOR ART



SINCE IMAGE ONLY OF EXTRACTED FIRST FIELD IS INPUTTED TO MPEG4 IMAGE CODING APPARATUS, FIRST FIELD IS USED AS REFERENCE IMAGE FOR MPEG4. THEREFORE, 1 IS ADDED TO VERTICAL COMPONENTS OF MOTION VECTORS UPON PREDICTION OF SECOND FIELD OF MPEG2 TO APPROXIMATE SECOND FIELD TO FIRST FIELD

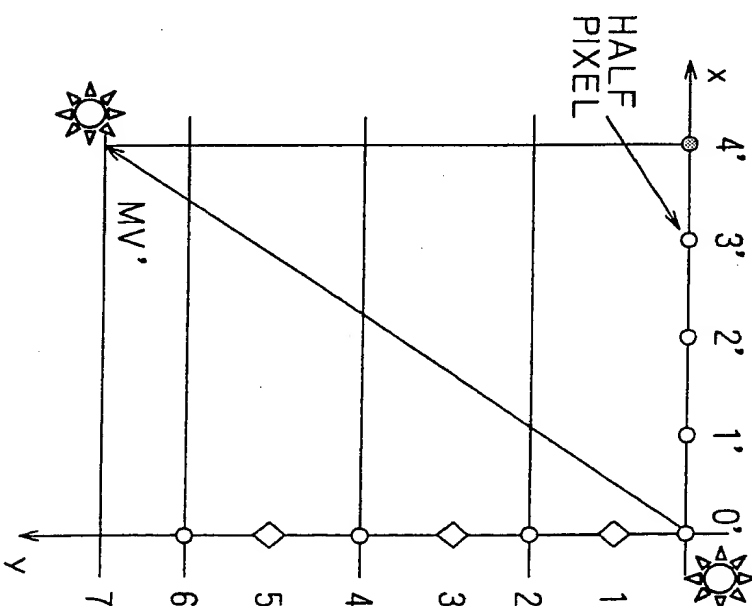
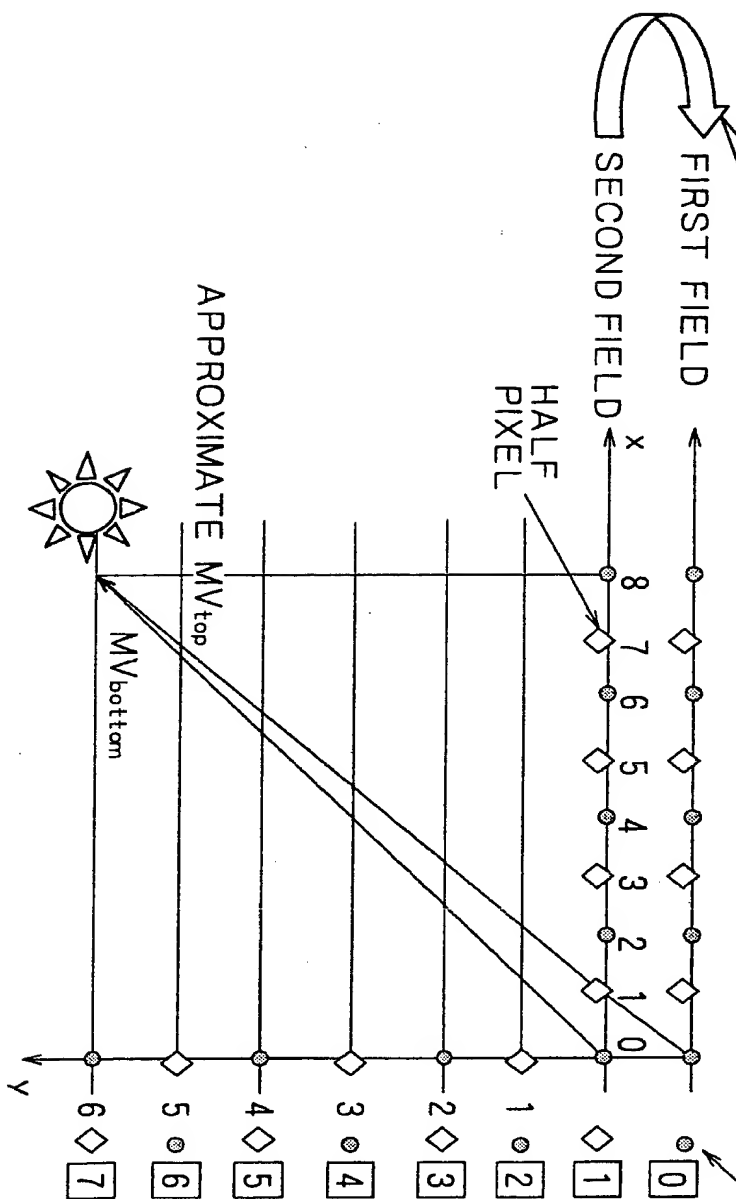
PRIOR ART

FIG. 12A

PRIOR ART

FIG. 12B

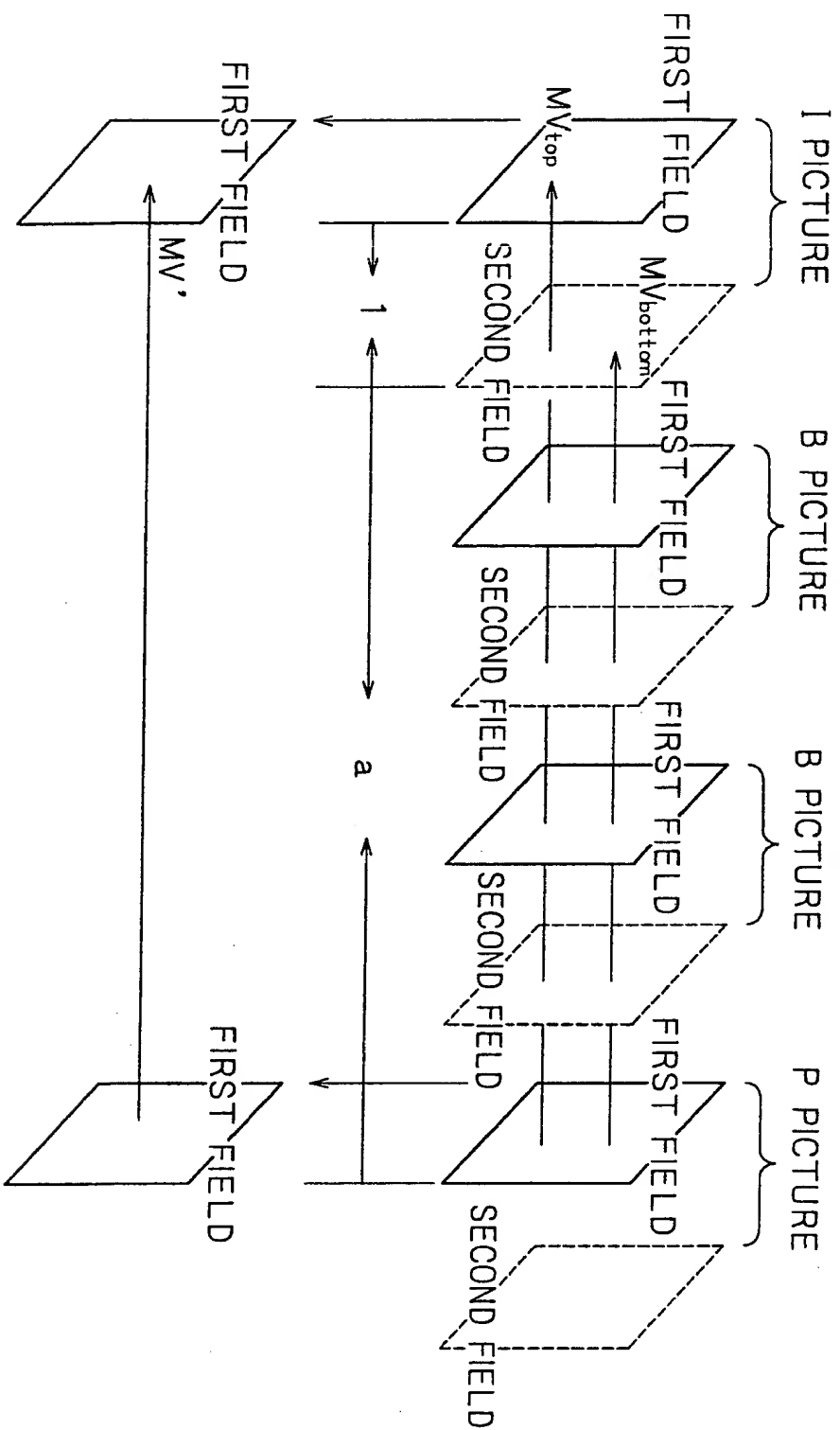
### VERTICAL COMPONENT OF MOTION VECTOR AFTER MODIFICATION



BEFORE RESOLUTION  
CONVERSION

## AFTER RESOLUTION CONVERSION

FIG. 13 PRIOR ART



# FIG. 14 PRIOR ART

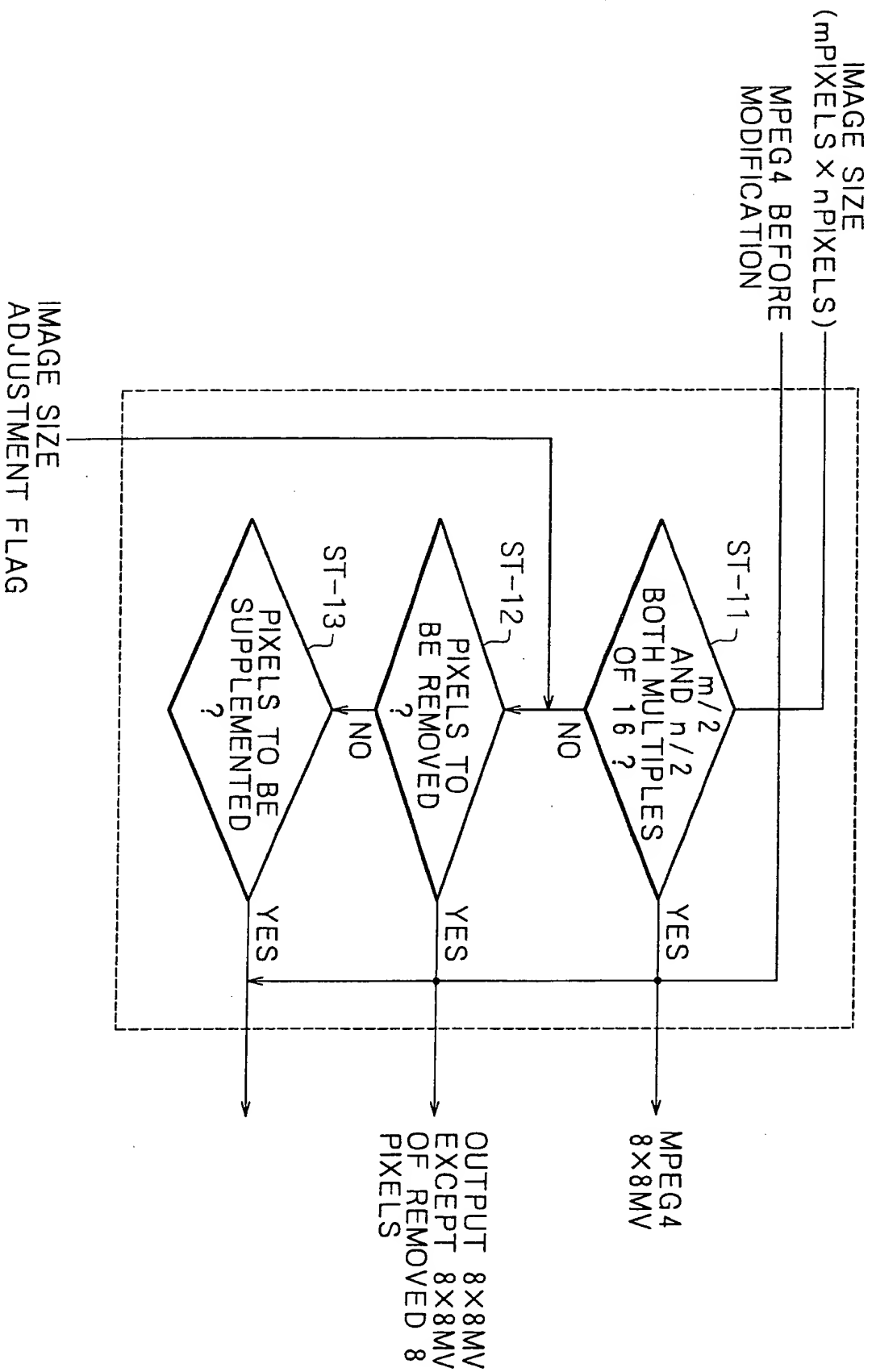


FIG. 15 PRIOR ART

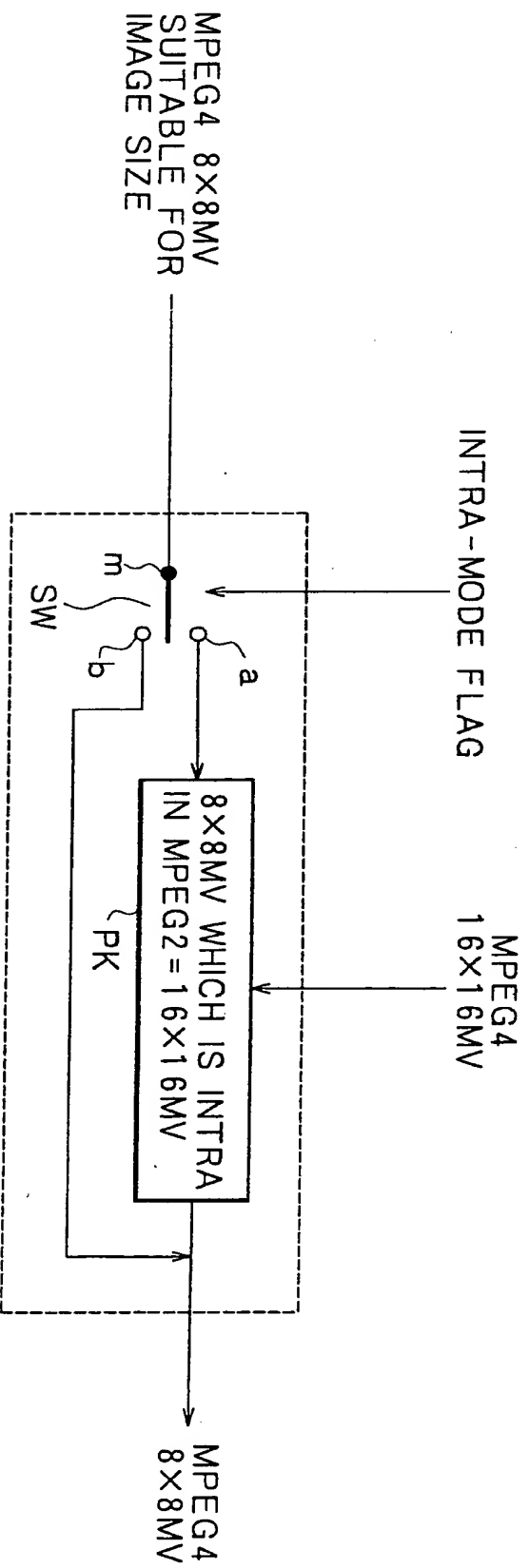


FIG. 16 PRIOR ART

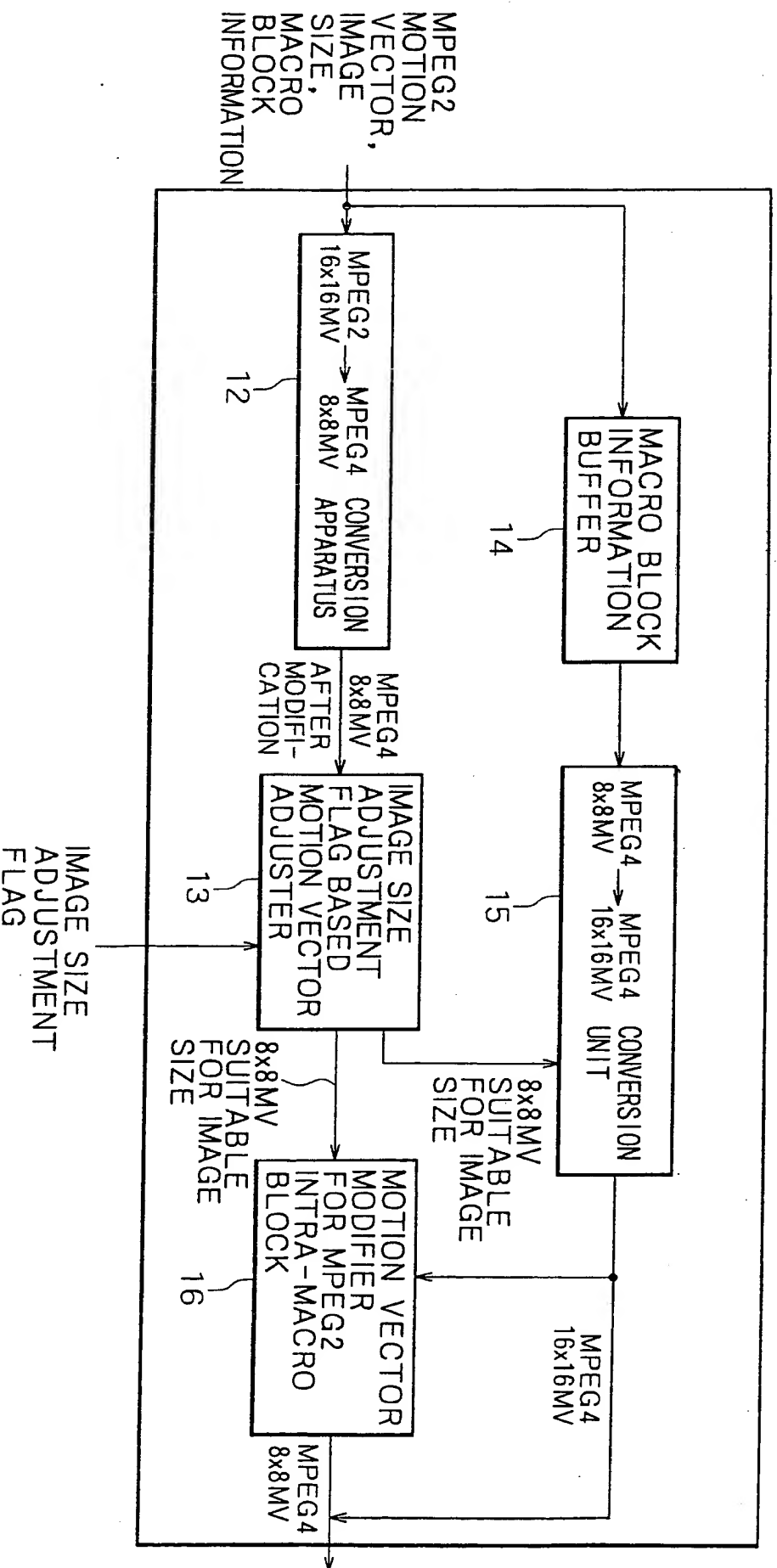




FIG. 17A PRIOR ART

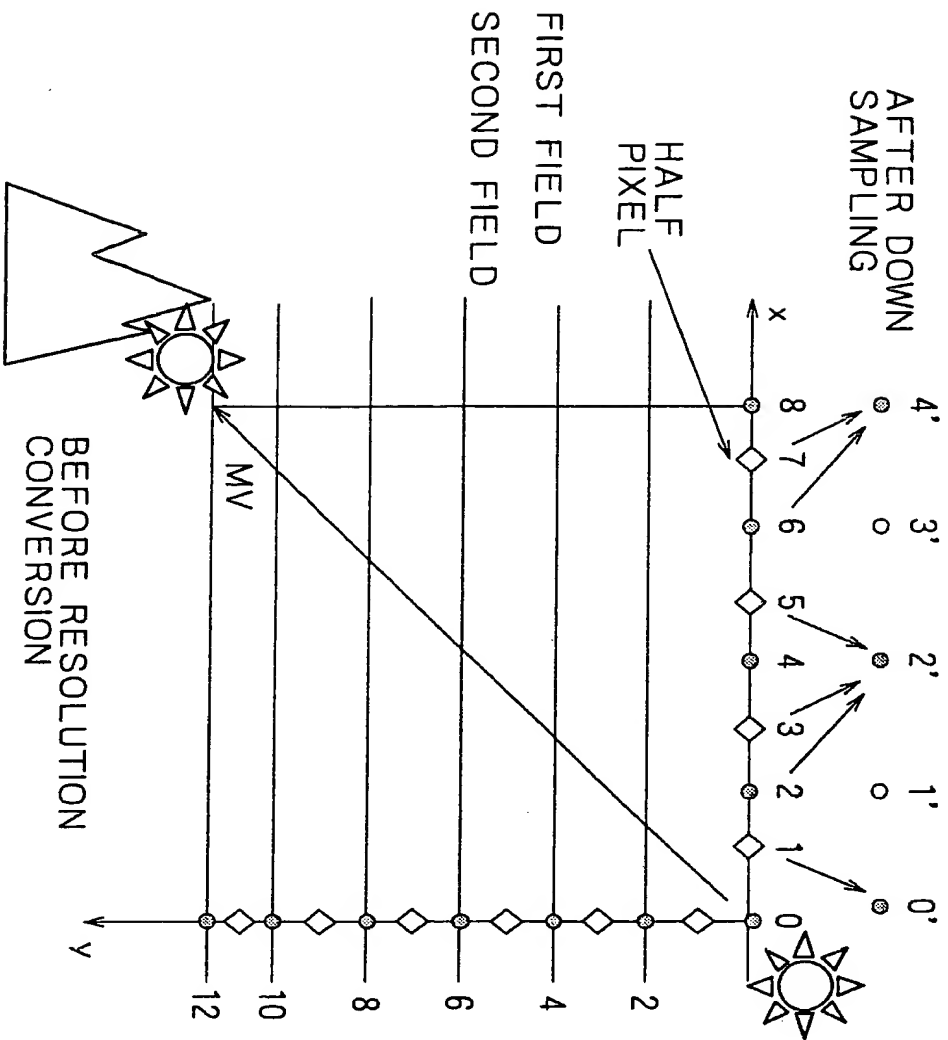


FIG. 17B PRIOR ART

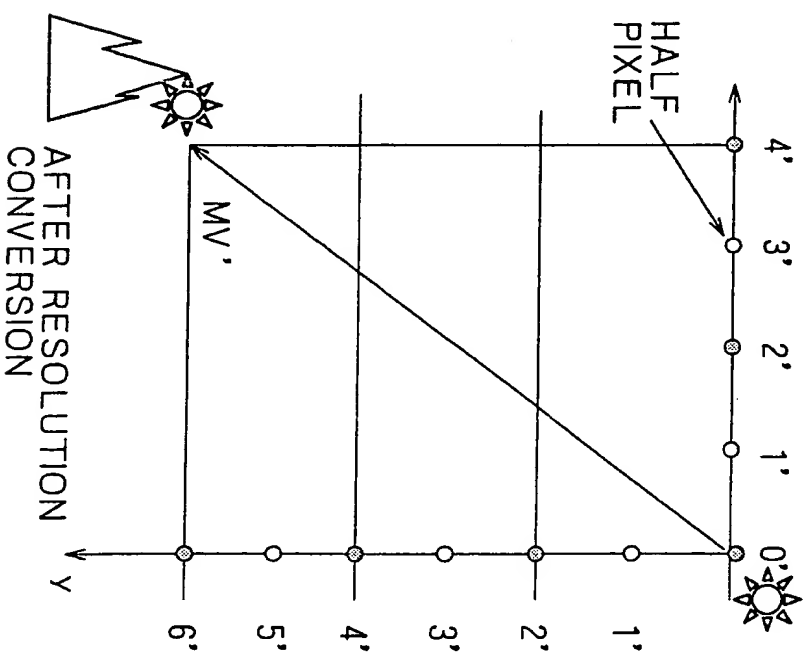


FIG. 18 PRIOR ART

REMAINDER WHEN MOTION VECTOR MV BEFORE CONVERSION IS DIVIDED BY 4	0	1	2	3
MOTION VECTLE AFTER CONVERSION	$[MV/2]$	$[MV/2]$	$[MV/2] + 1$	$[MV/2]$

$[MV/2]$  REPRESENTS INTEGER  
PART WHEN MV IS DIVIDED BY 2

FIG. 19A PRIOR ART

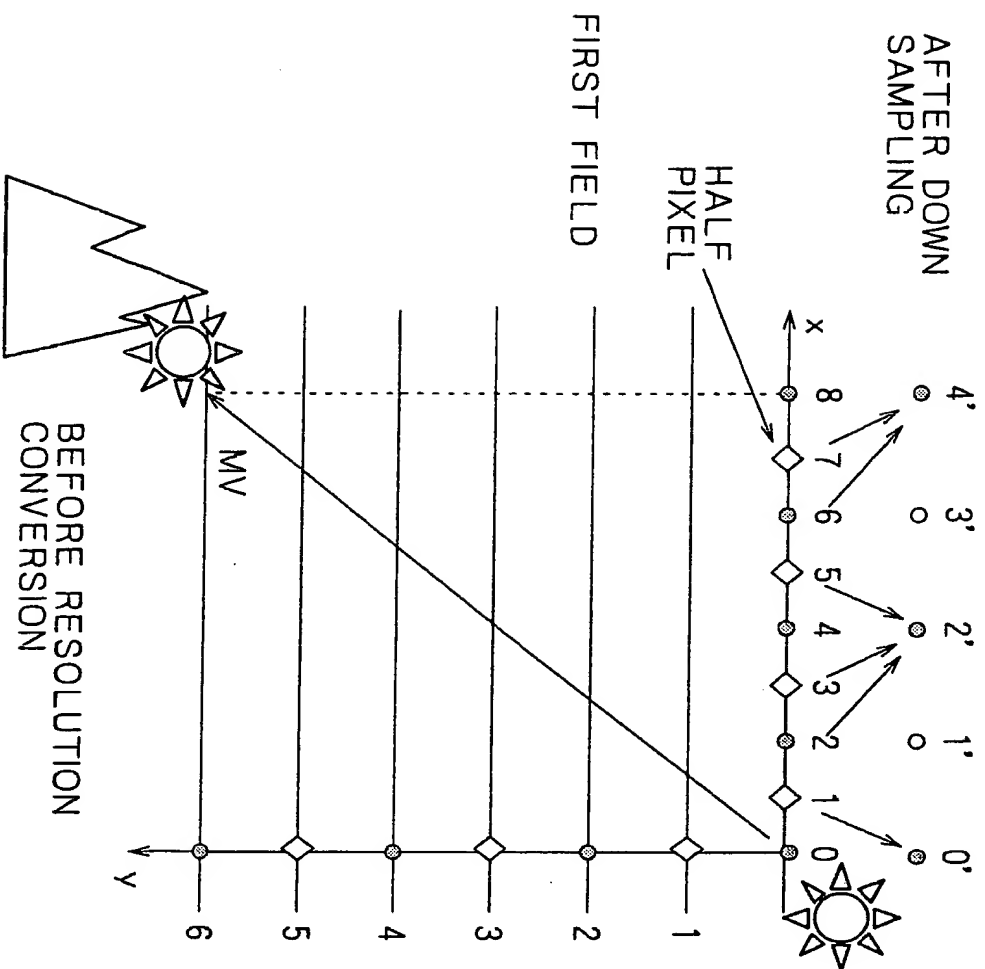
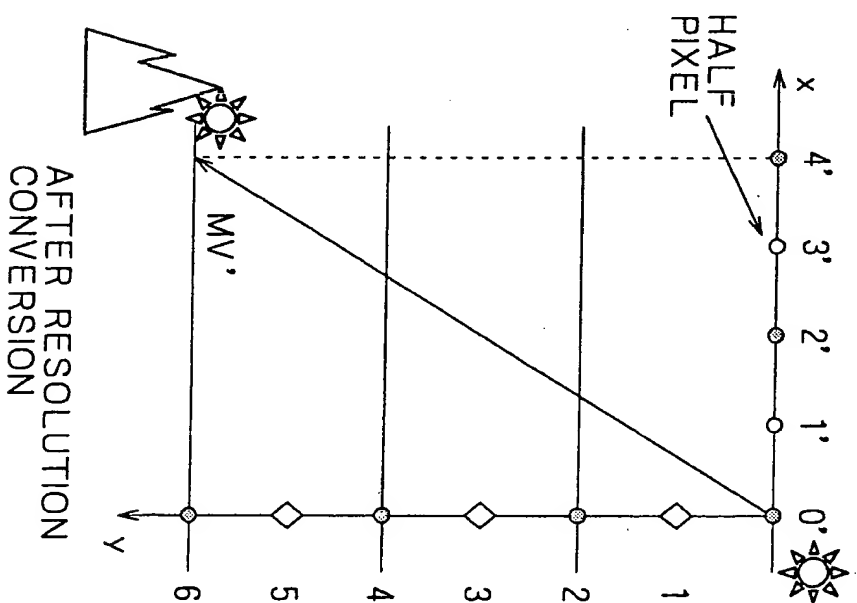


FIG. 19B PRIOR ART



SINCE IMAGE ONLY OF EXTRACTED FIRST FIELD IS INPUTTED TO MPEG4 IMAGE CODING APPARATUS, FIRST FIELD IS USED AS REFERENCE IMAGE FOR MPEG4. THEREFORE, 1 IS ADDED TO VERTICAL COMPONENTS OF MOTION VECTORS UPON PREDICTION OF SECOND FIELD OF MPEG2 TO APPROXIMATE SECOND FIELD TO FIRST FIELD

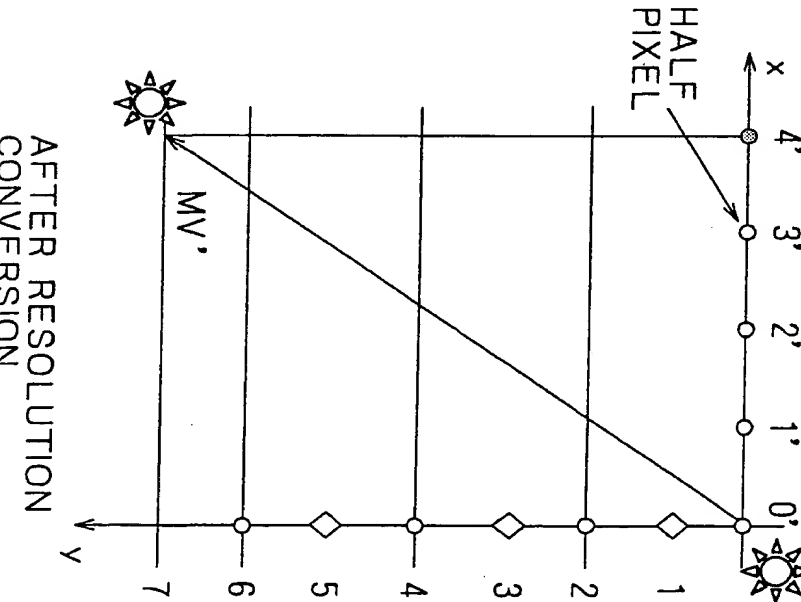
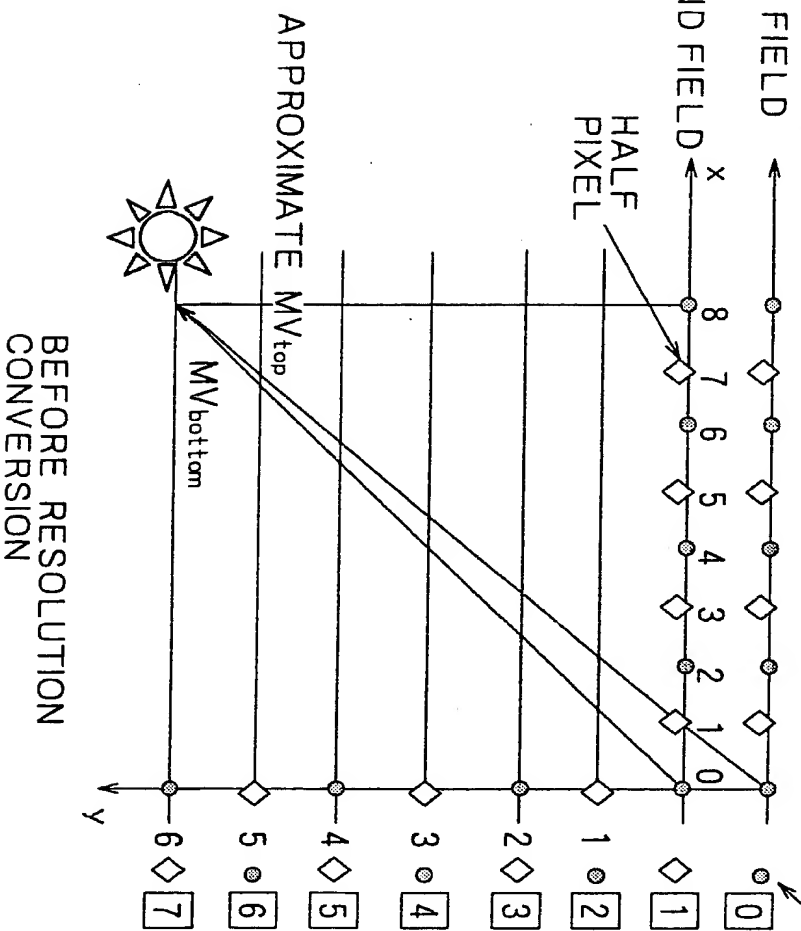
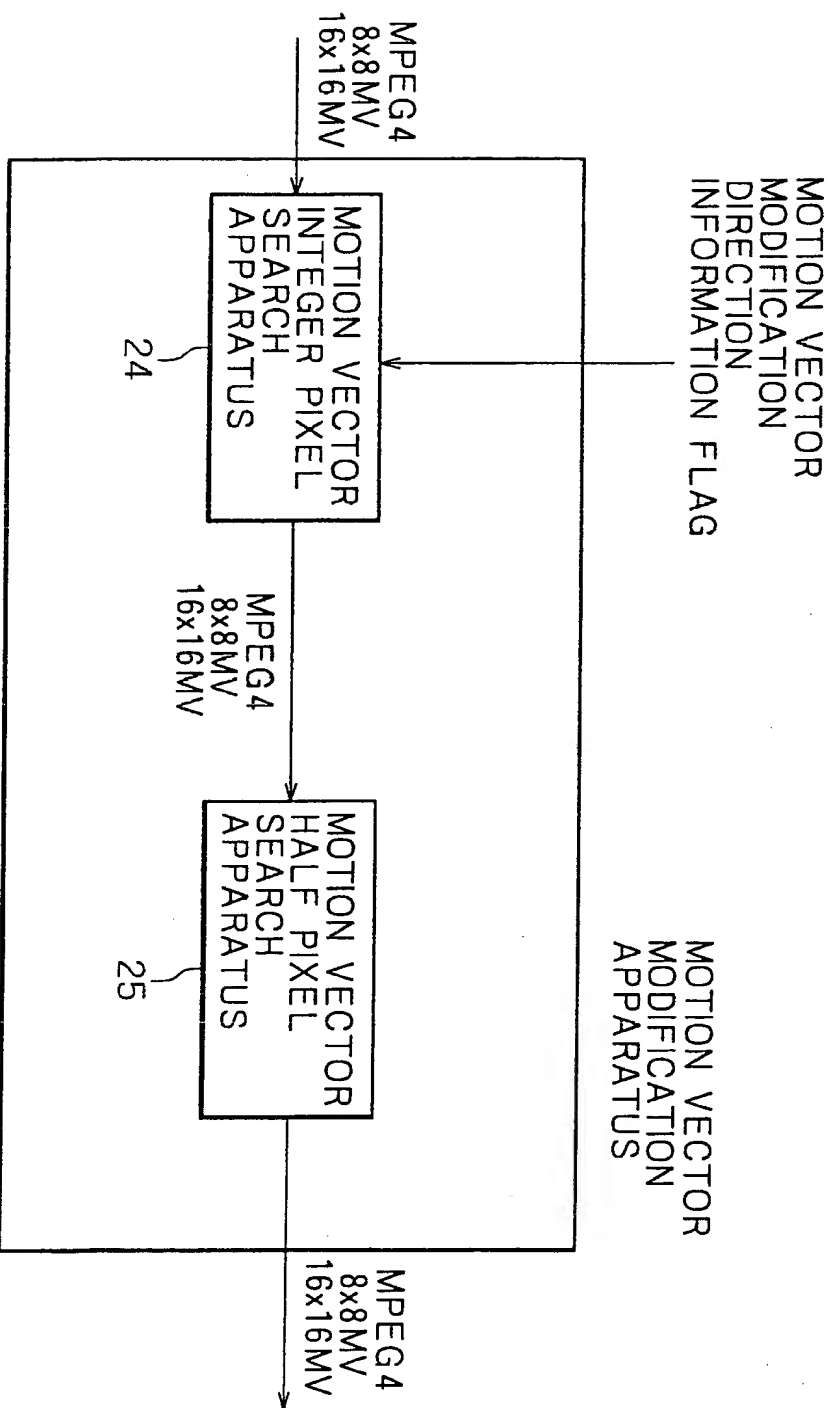


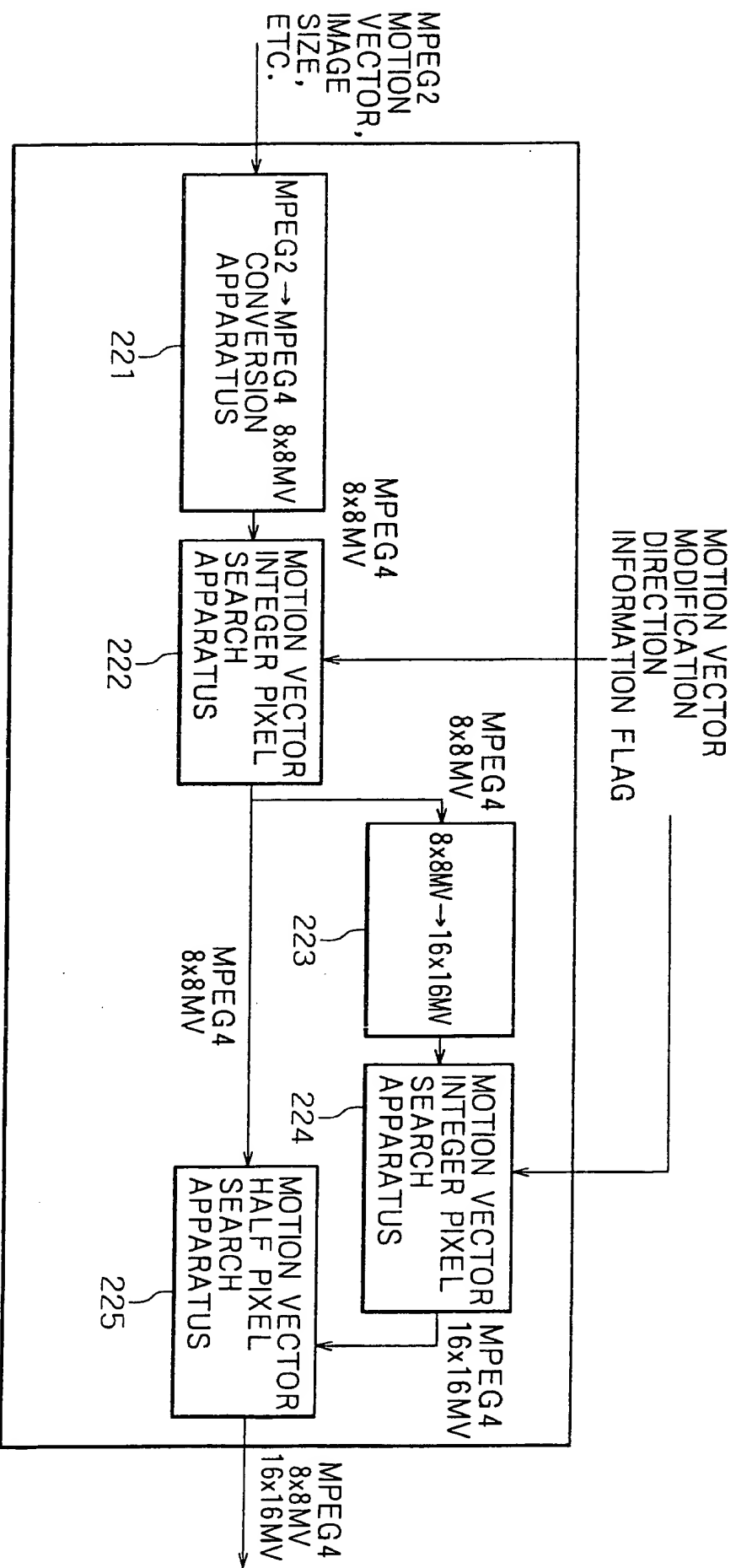
FIG. 20A

FIG. 20B

FIG. 21 PRIOR ART



# FIG. 22 PRIOR ART



MOTION VECTOR CONVERSION APPARATUS

- MPEG2 INTEGER PIXEL    ● MPEG4 INTEGER PIXEL
- ◇ MPEG2 HALF PIXEL

FIG. 23A

PRIOR ART

MODIFICATION FROM MPEG2  
INTEGER PIXEL TO MPEG4

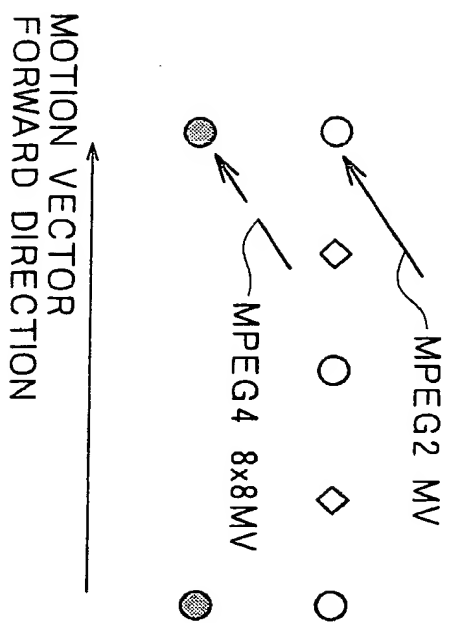
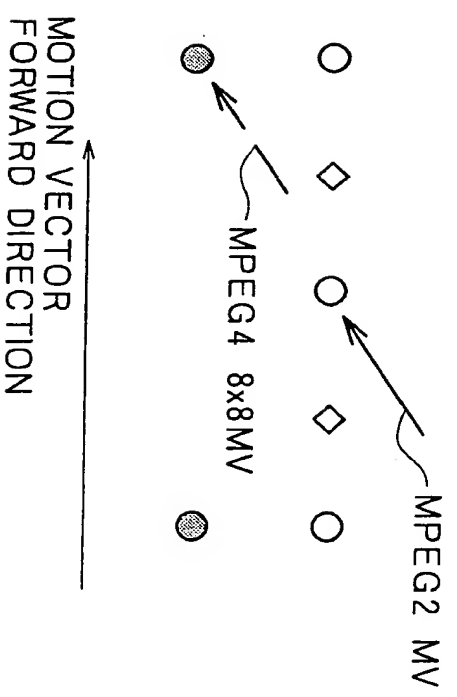


FIG. 23B

PRIOR ART

MODIFICATION FROM MPEG2 INTEGER  
PIXEL TO MPEG4 INTEGER PIXEL  
OF FORWARD DIRECTION



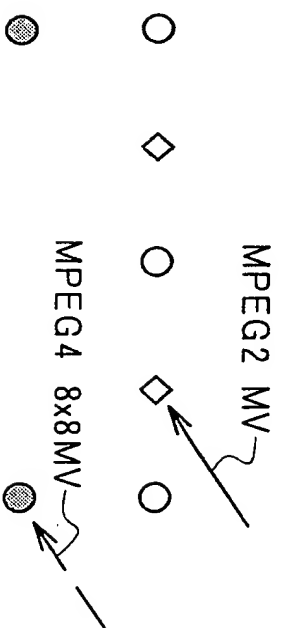
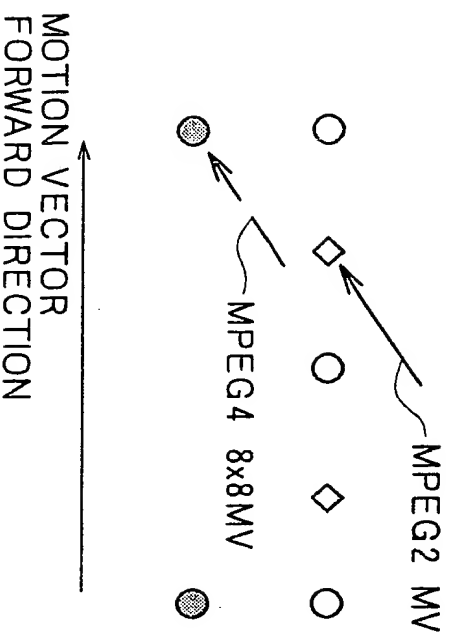
- MPEG2 INTEGER PIXEL ● MPEG4 INTEGER PIXEL
- ◇ MPEG2 HALF PIXEL

FIG. 24A PRIOR ART

FIG. 24B PRIOR ART

MODIFICATION FROM MPEG2 INTEGER  
PIXEL TO MPEG4 INTEGER PIXEL  
VALUE OF FORWARD DIRECTION

MODIFICATION FROM MPEG2 INTEGER  
PIXEL TO MPEG4 INTEGER PIXEL  
VALUE OF REVERSE DIRECTION





PRIOR ART

FIG. 25

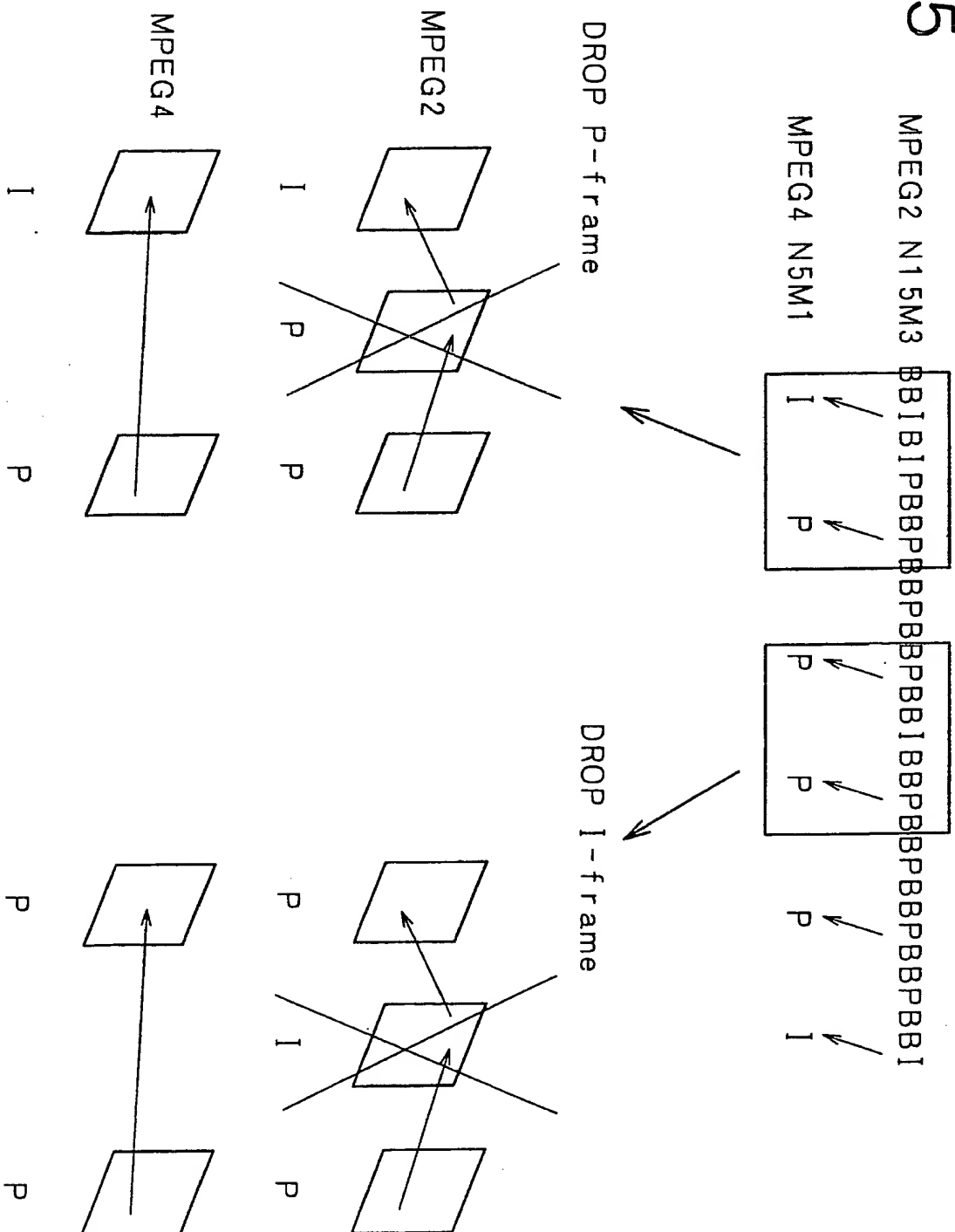


FIG. 26 PRIOR ART

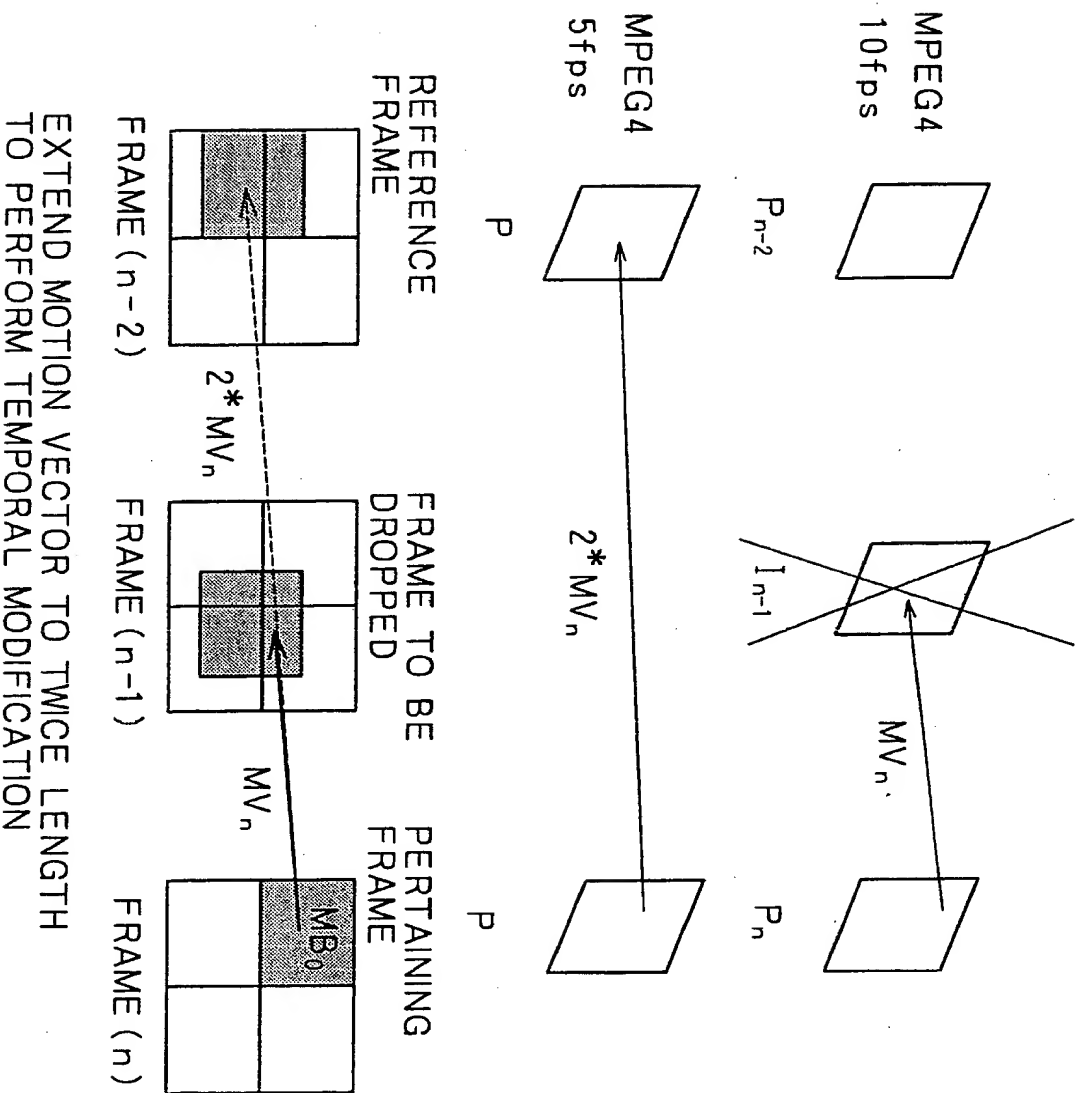
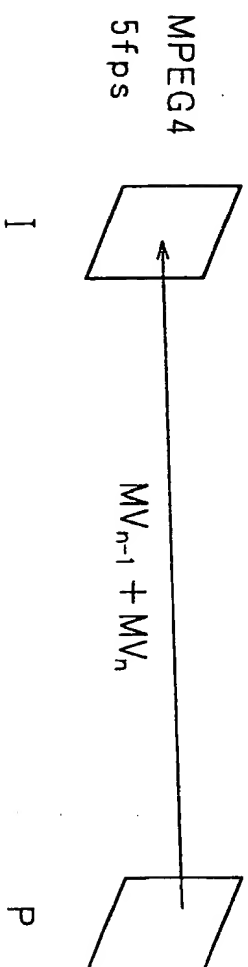
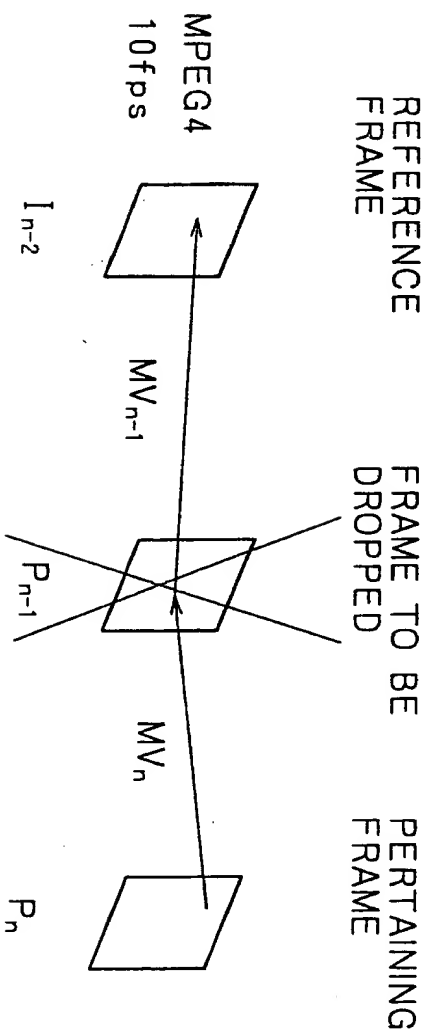
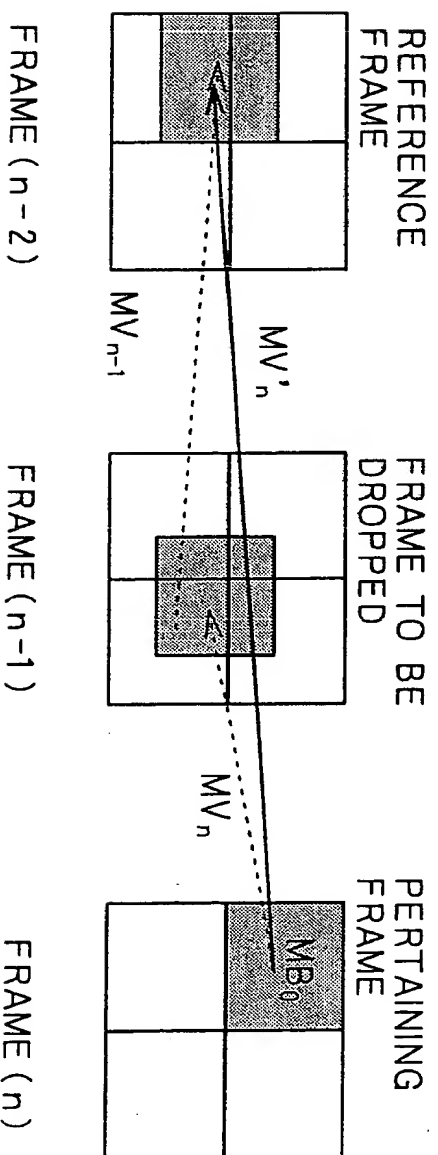


FIG. 27 PRIOR ART



# FIG. 28 PRIOR ART



SELECT  $MV_{n-1}$  WHICH EXHIBITS MAXIMUM PARAMETER X  
(WHERE X IS ONE OF THE FOLLOWINGS)

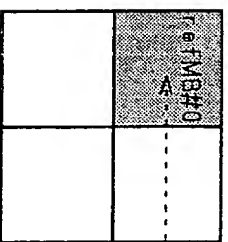
- MB overlapped area
- MB overlapped area/Coeffbits
- MB overlapped area/Q-scale
- MB overlapped area/(Coeffbits×Q-scale)

$$MV'_n = MV_n + MV_{n-1}$$

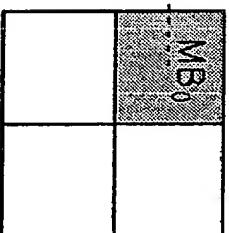
# FIG. 29 PRIOR ART

OVERLAP 1 MB

DROPPED FRAME



$MV_n$

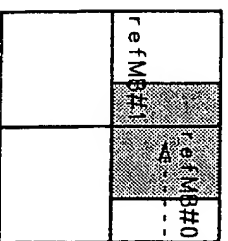


FRAME (n-1)

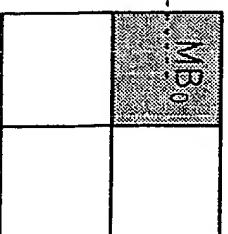
FRAME (n)

OVERLAP 2 MBs

DROPPED FRAME



$MV_n$

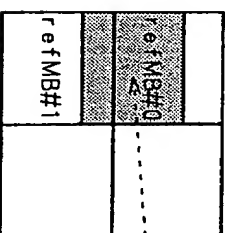


FRAME (n-1)

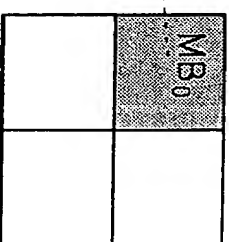
FRAME (n)

OVERLAP 2 MBs

DROPPED FRAME



$MV_n$

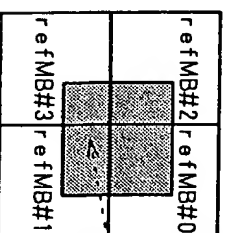


FRAME (n-1)

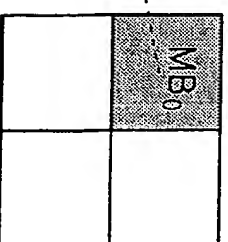
FRAME (n)

OVERLAP 4 MBs

DROPPED FRAME



$MV_n$



FRAME (n-1)

FRAME (n)

OVERLAPPING MB(1, 2 OR 4MB)

FIG. 30 PRIOR ART

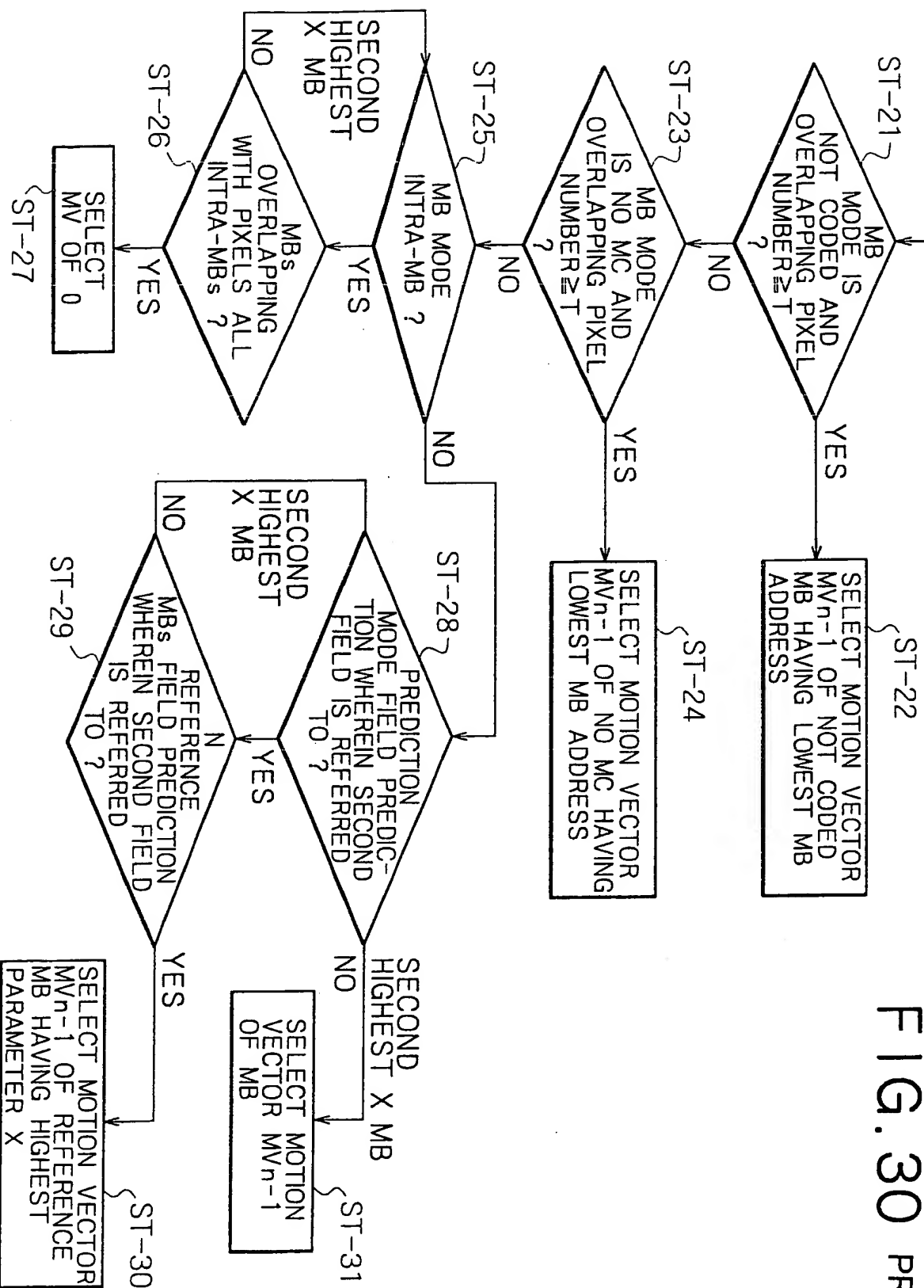


FIG. 31 PRIOR ART

B PICTURE      P PICTURE      B PICTURE

I PICTURE      B PICTURE      B PICTURE      P PICTURE

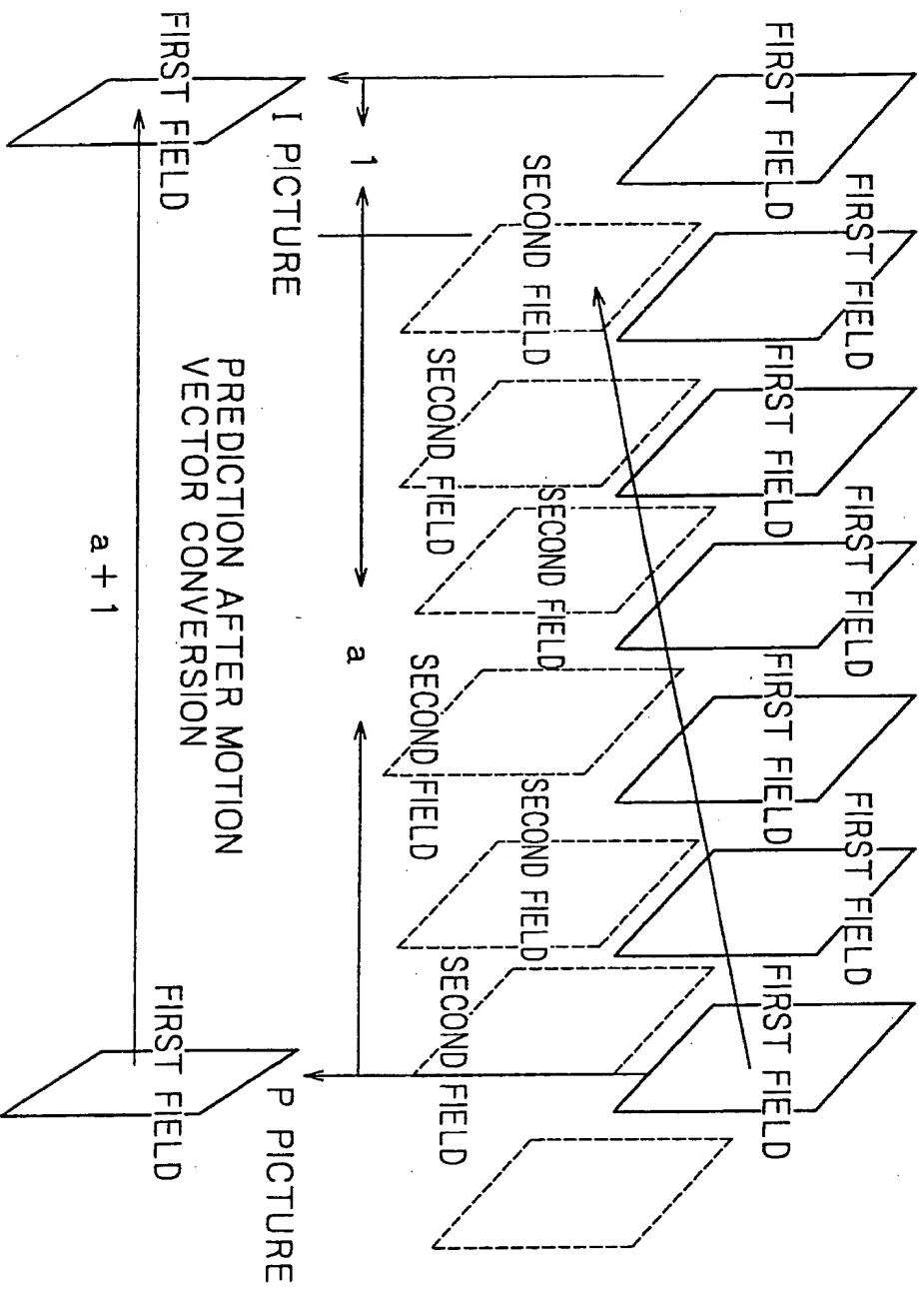
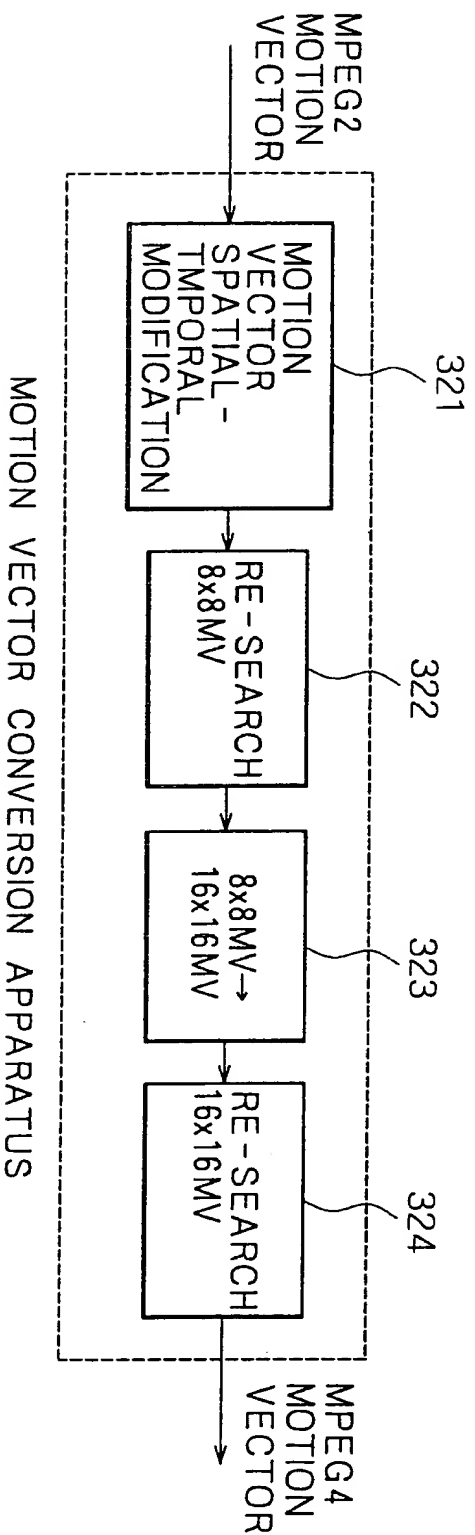
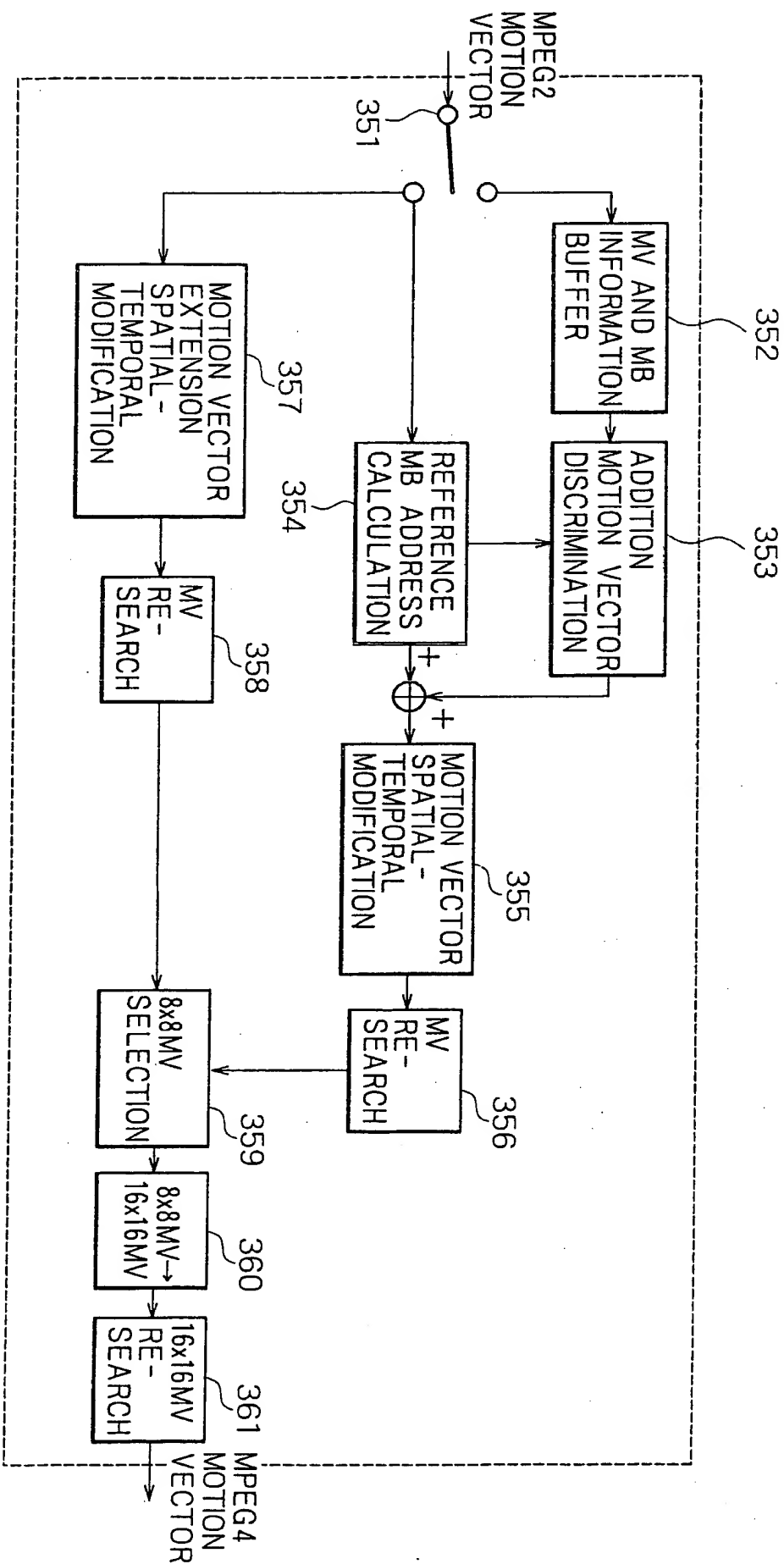


FIG. 32 PRIOR ART





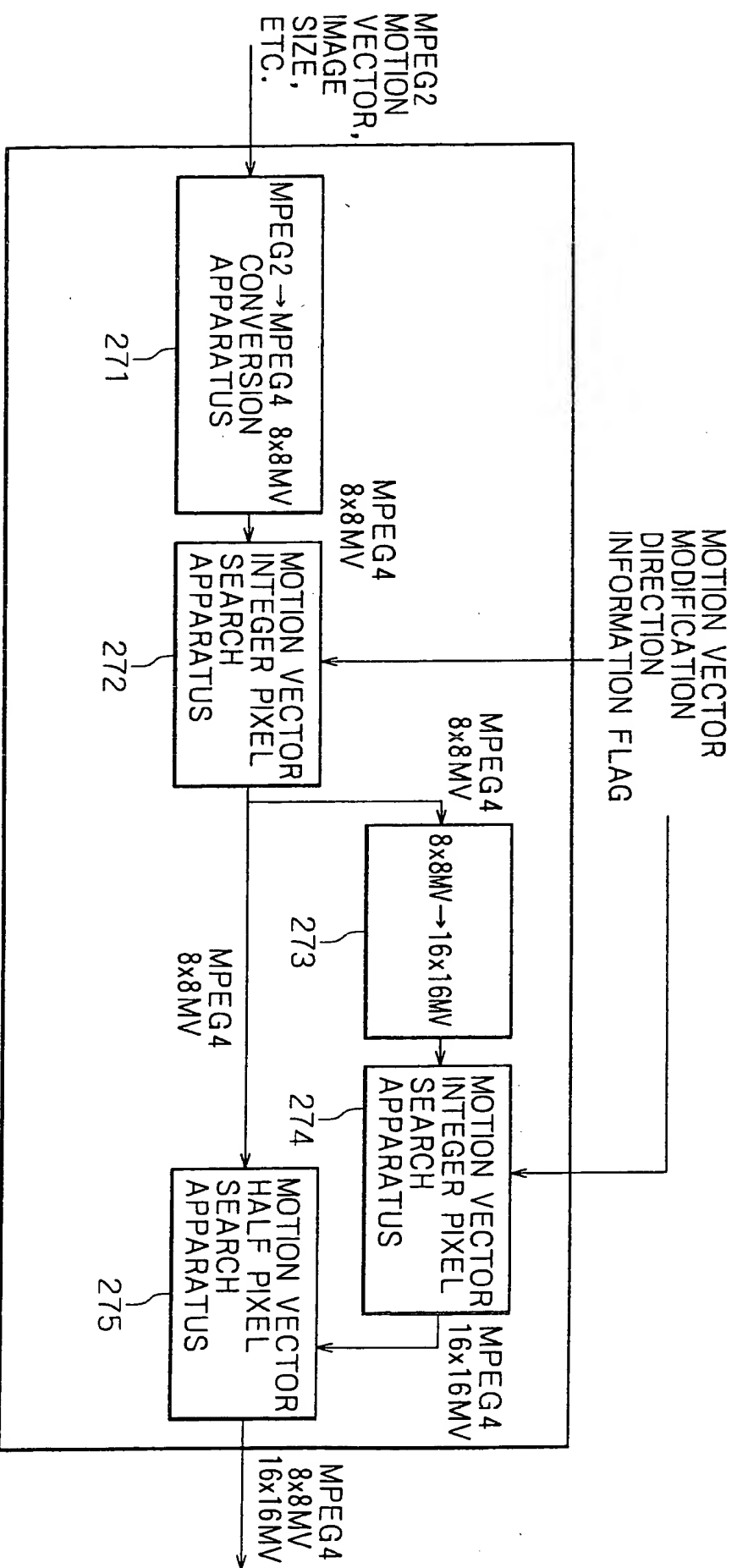
# FIG. 33 PRIOR ART



MOTION VECTOR CONVERSION APPARATUS

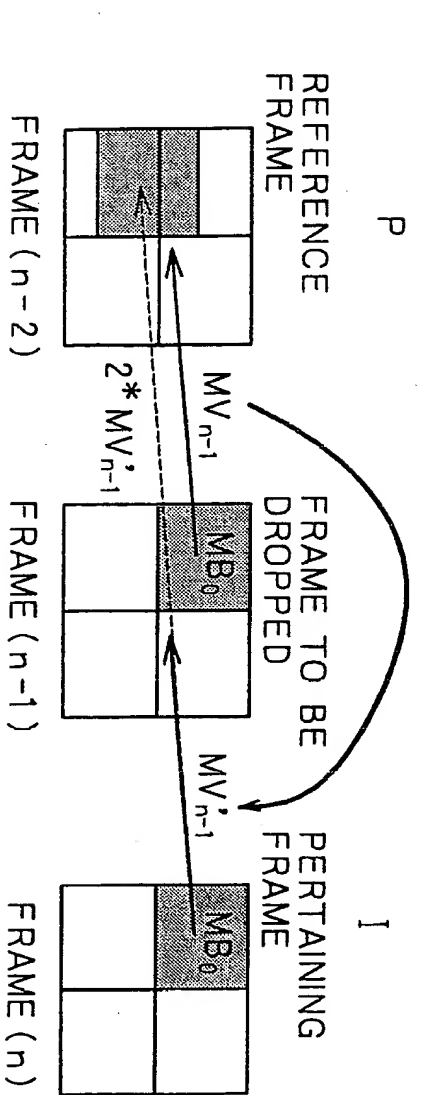
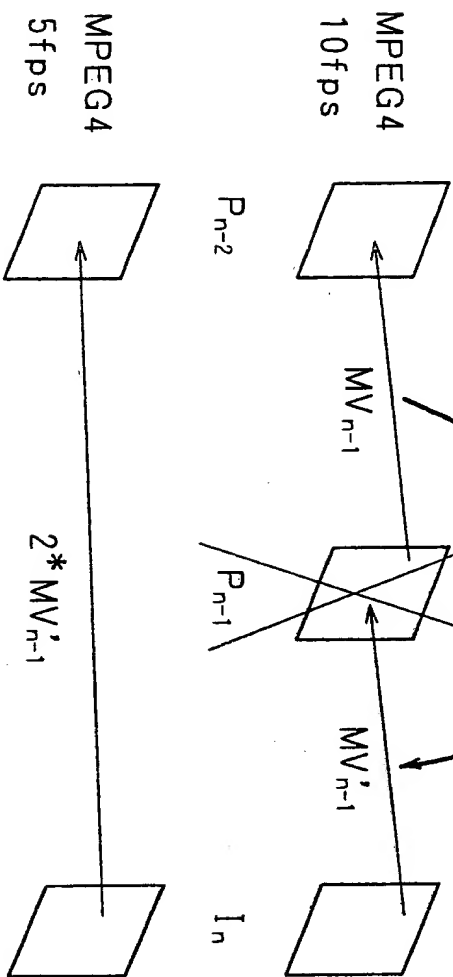
# FIG. 34 PRIOR ART

## MOTION VECTOR CONVERSION APPARATUS



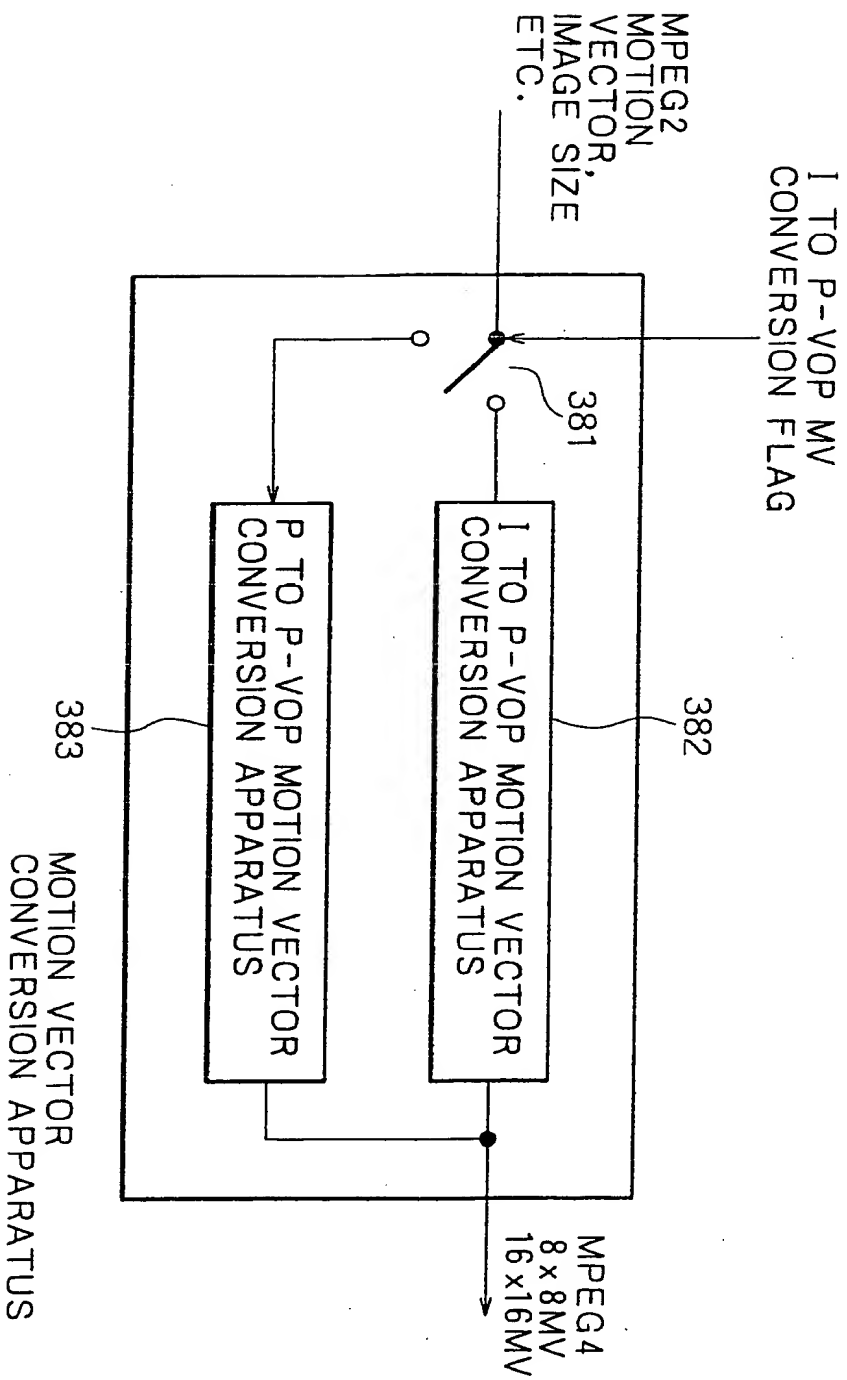
# FIG. 35

MOTION VECTORS OF  $P_{n-1}$  FRAME MB ARE  
 DUPLICATED ON  $I_n$  MB AT THE SAME POSITIONS AND  
 EXTENDED TO TWICE FOR TEMPORAL MODIFICATION

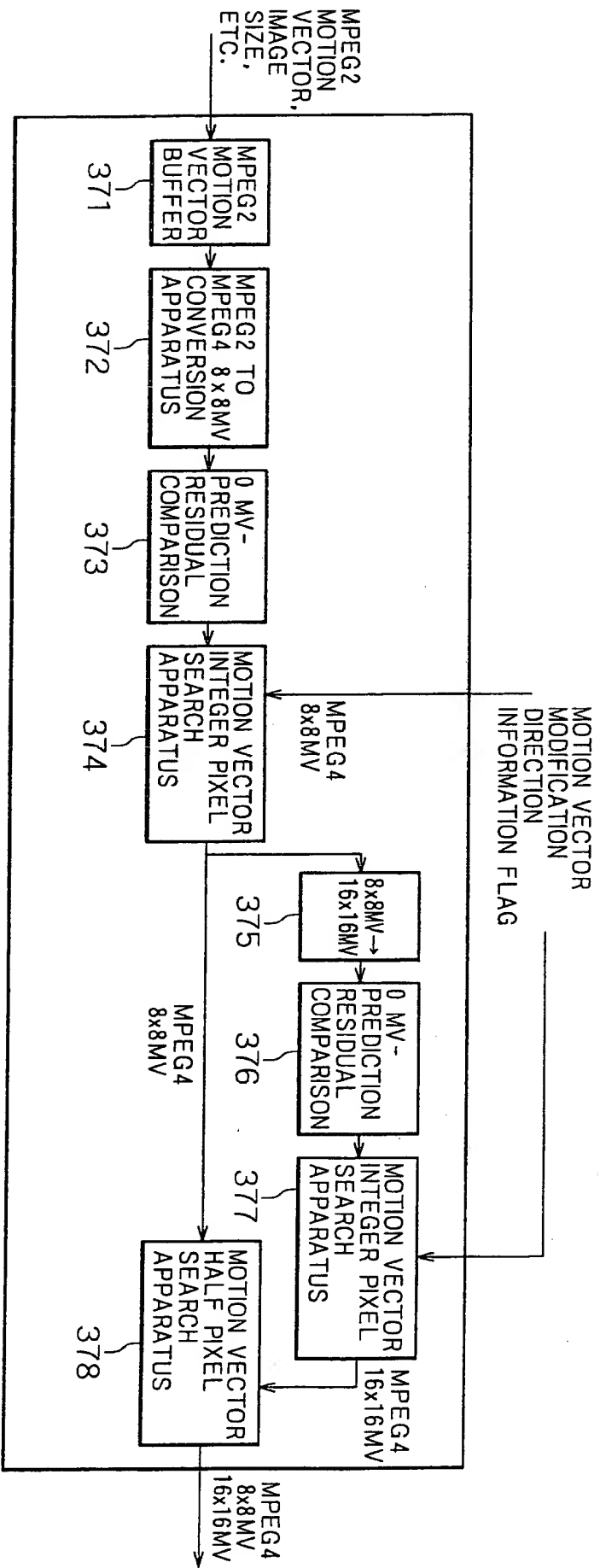


$MV_{n-1}$  IS DUPLICATED AND EXTENDED  
 TO TWICE FOR TEMPORAL MODIFICATION

FIG. 36



# FIG. 37



I TO P MOTION VECTOR CONVERSION APPARATUS